HOARD'S DAIRYMAN

DECEMBER 10, 1961

The National Dairy Farm Magazine

DuPuits is an early riser

NORTHRUP KING

MORE FROM EVERY ACRE...THROUGH CREATIVE SEED RESEARCH

No, DuPuits isn't the name of our little farm friend here! But, it *is* the name of his dad's beautiful crop... Northrup King's prolific DuPuits alfalfa.

DuPuits (pronounced "dew-pwee") is known as an early riser because of its happy habit of rapid, early spring growth and unusually fast recovery after cutting. This head-start means DuPuits normally should be cut a week earlier than other varieties, and usually results in an extra cutting each year. It winters well, and is resistant to leaf spot disease. And, because of its growth characteristics and tolerance to insect damage, DuPuits sends leafhoppers packing to easier pickin's.

True, DuPuits makes some demands for its virtues. It asks for fertile soil. It pours its vigor into a comparatively short life (one to three hay years). But, farmers who do right by DuPuits (and thousands do every year) agree that the heavy tonnage of top-quality hay, succulent green-chop, or sweet nutritious silage gives them full measure, and then some, for the little extra cost and care.

This time-conscious alfalfa was the first *privately* developed variety to become successfully established in this country. Last year, well over one quarter of a million proud acres were added to those under the green and purple banner of DuPuits... making it the third most widely planted variety.

Other members of the family

Of course, not everyone is ready for NK's aristocratic DuPuits. For them, NK's general purpose 919 Brand may be the answer. It still requires good soil and good treatment, and provides additional winter hardiness.

Or, are you looking for an exceptionally hardy, long-rotation alfalfa? Northrup King's 10-19 Brand will last year after year under heavy grazing and cutting. It is highly resistant to bacterial wilt disease and yields especially well in combination with forage grasses.

But, getting back to DuPuits. If you've never planted it before, try it next time you put in alfalfa. What a crop that DuPuits is!

Note: These new alfalfas are all NOCULIZED® seed—already inoculated with the *right* nitrogen-fixing bacteria... ready to plant when you get it.

NORTHRUP KING SEEDS / Minneapolis, Minn.
Fresno, Calif. / Boise, Idaho

How can Nutrena Dairy Prescription Service help you?

No other dairy herd is exactly like yours. And feeding your dairy herd is a different problem than feeding anyone else's. How can you hope to hit the right "mix" with old-fashioned feeding ratios and "shotgun" feeding recommendations?

You can't afford to guess—and that's what makes Nutrena Prescription Feeding so valuable. The Nutrena Prescription Calculator puts *volumes* of dairy feeding knowledge at your Nutrena dealer's fingertips. He can quickly find *your* herds' requirements for the nutrition needed to reach their milk-making capacity. He can quickly match these requirements with a completely balanced ration . . . one that makes full use of your roughage and grain to provide top milk flow at lowest possible feed cost.

Read the Nutrena Prescription Feeding reports from these good dairymen. Check with your Nutrena dealer. Check your ration with a Nutrena Dairy Prescription.

Check these Prescription Feeding Results

Milk check now 15,000 pounds larger! Richard Cook, Weidman, Michigan, checked his dairy ration with Nutrena. Within a month, daily milk production from 38 Holsteins jumped 500 pounds.

Milk production up, concentrate cost down. Gerald Trende, Cologne, Minnesota, reported "My cows never milked as good all winter. My concentrate bill w~ the lowest I have had for seven months of production."

Milk production up 125 lbs. per cow the first 30 days. Alvin Heinz, Rogers, Minnesota, got 125 lbs. more milk per cow the first 30 days on Nutrena. "My feed cost for 100 pounds milk is definitely down," he also reported.

Check with **Nutrena**®

For name of nearest dealer write, Nutrena Mills, Inc., 200 Grain Exchange, Minneapolis 15, Minn.

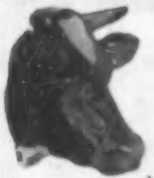
The farm-proven Nutrena Prescription Calculator brings a new precision to dairy feeding.

New KOW-KARE

HELPS ASSURE PROPER NUTRIENT BALANCE

Based on Latest Nationwide Evidence For

HIGH PRODUCTION
BETTER BREEDING
LONGER MILKING LIFE...



Features 8,000 Units of Vitamin A, 10,000 Units Vitamin D Per Ounce!

Longer milking life means real Profits! As the average yearly milk production per cow per year increases so, too, the need for essential Nutrients *on a year around basis* is increasing.

New KOW-KARE is a *sure* way of providing daily levels of trace elements and micro-nutrients *in a highly available form,* at little extra cost (2¢ per cow per day) and at a great benefit for improved cow health, breeding and production.

AVERAGE DAILY DOSE PER COW: Based upon latest nationwide nutritional practical and test evidence, New KOW-KARE now features 8,000 Units of Vitamin A and 10,000 Units of Vitamin D per ounce. Typical evidence:

VITAMIN A . . . ***Texas Nutritional Conf. 1961.*** Current indications now are that minimum optimum feeding levels of ***Stabilized Vitamin A*** for ruminants may be ***much higher*** than commonly recommended.

Midwest-West Reports: Beef cattle coming off dry ranges and dairy cattle being fed poor quality hay, in many cases are low in Vitamin A — it would presently appear to be good judgement to feed moderate levels of supplemental Vitamin A — about 8,000 to 10,000 units per animal daily. Cows receiving extra Vitamin A tend to hold up better in milk production and it is believed this evidence of more vigorous health will assist in breeding performance.

VITAMIN D . . . ***Doctors Hibbs and Conrad, Dairy Day, 1960, Ohio Agriculture Experiment Station, Wooster, Ohio*** The very best quality roughages based on green color or high carotene content, may not be the best from Calcium and Phosphorus utilization. Vitamin D content varies widely. It appears more mature cows may need help in utilizing Calcium from the ration. Apparently the whole problem of meeting calcium and phosphorus needs of producing dairy cattle must be re-evaluated in the view of newer knowledge and the stress of higher, longer life-time production.

NOTE: KOW-KARE'S potent Vitamin levels A, D and E, plus minerals and tonic drugs provide a one-dose proper daily Nutrient balance.

Assist in high production, better breeding; aid longer milking life, help increase profits. Buy modern KOW-KARE at farm and drug stores. Use it *on a year around basis* to aid continuous top performance. KOW-KARE is excellent for Feedlots. Write for NEW TON PRICE.

FREE COW BOOK Illustr. "Care and Feeding of Dairy Cattle". Write:

DAIRY ASSOCIATION CO.
Lyndonville 14, Vermont

Good Cow Health Leads to Longer Milking Life...
GREATER PROFITS PER COW

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
W. D. Hoard & Sons Co.
Fort Atkinson, Wis.

W. D. Hoard

Founded by
W. D. Hoard, 1885
Fort Atkinson, Wis.

W. D. HOARD, JR.
General Manager

W. D. KNOX
Editor

Associate Editor, E. C. MEYER
Associate Editor, R. E. DAVENPORT
Advertising Manager, T. E. BJORK
Veterinary Editor, DR. E. A. WOELFFER

In this issue . . .

Volume 106, No. 23
December 10, 1961

Title page

Records are to use! . . . . . *P. Dorner* 1149

Features

Thinking of raising heifers? . . . . . *G. C. Pulver* 1151
Here is our winter grazing program — Round Table . . . 1152
Cold weather starting aids . . . . . *M. E. Long* 1154
Let pipelines carry your quality milk . . . *R. W. Kleis* 1155
How to mechanize the farm woodlot . . . . *E. W. Foss* 1156
Is your chimney safe? . . . . . *D. W. Bates* 1157
How they dairy farm "down under" . . . . *G. Fenton* 1158
Holiday decorations that glisten and gleam . . *A. Joselyn* 1170
Cornish pasty . . . . . *C. Harris* 1172
What does it take to become a Star Farmer? . . . . .
W. Harr and L. Krug 1176

Short articles

Blood in the urine . . . . . *E. A. Woelffer, D.V.M.* 1146
Brown Swiss breeders elect Hull to succeed Evans 1159
Faster sire proofs? . . . . . *D. Van Vleck* 1168
Learn about marketing orders (poultry) . . *J. W. Sicer* 1173
Dairy feeding problems in Hawaii . . . . *J. K. Loosli* 1178

Regular departments

Washington Dairygrams . 1141
Opinions and Brickbats . 1142
Farm Flashes 1150
Editorials 1160
Questions from Readers . 1161
Artificial Breeding . . . 1168
Dairy Farm Home . . . 1170
Patterns 1171
Poultry 1173
Young Dairymen . . 1176
Feeding 1178
Swine 1179
Handy Hints 1181
Veterinary 1186

COVER PICTURE

Each year, as this season rolls around, the editors select the December 10 issue cover with some misgivings. Will a snow scene be appropriate for the main dairy areas of the country? Or will it be another late season with no snow until close to Christmas? This year, we are risking a forecast of snow by December 10 because snow is reported in the Rockies and the long-range forecast for November is for cold weather and high precipitation. That should make this fine J. C. Allen and son photo of the Samuel Voss and Son farm, Lafayette, Ind., suitable and seasonable. Behind these pretty pines is the home of the son, Robert, who operates the 170-acre and 75-Holstein farm with the daily assistance of his father, who now resides in town.

Hoard's Dairyman, copyright 1961 by W. D. Hoard & Sons Company. All rights reserved. Title registered U. S. Patent office.

Published the 10th & 25th of each month by W. D. Hoard & Sons Company, 28 Milwaukee Avenue, West, Fort Atkinson, Wisconsin. Second class postage paid at Fort Atkinson, Wis.

Postmaster, send Form 3579 to Hoard's Dairyman, 28 Milwaukee Ave., W., Fort Atkinson, Wis.

Subscription Prices, United States and possessions, 3 years, $2.00. One year, $1.00. In Canada, 1 year, $2.00; three years, $5.00. In all other countries including Latin America, 1 year, $3.00.

The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 10th of the preceding month. For the 25th of the month issue, copy must be received before the 25th of the preceding month.

Washington Dairygrams

MORE MILK NEXT YEAR, 2 BILLION POUNDS OF IT, IS THE PREDICTION OF U.S.D.A. OUTLOOK CONFERENCE. BLAME SAGGING BEEF PRICES SINCE 1959, TWO BOOSTS IN PRICE SUPPORTS, AND HIGHER PRODUCTION PER COW.

SHARP SHIFT IN DAIRY POLICY VOTED BY NATIONAL MILK PRODUCERS FEDERATION. HAD LONG OPPOSED OPENING OF MARKETING AGREEMENT ACT OF 1937. BUT REVERSAL CAME ON ISSUE OF PERMITTING USE OF ANNUAL BASES IN FEDERAL MILK ORDERS. CONGRESS MUST DECIDE.

EXPLOSION OVER FEED GRAINS ISSUE ERUPTS HERE AS CHARLES SHUMAN, PRESIDENT OF FARM BUREAU, IS ACCUSED OF BEING "ANTI-FARMER" BY HAROLD COOLEY, CHAIRMAN OF THE HOUSE AGRICULTURE COMMITTEE. ACCORDING TO COOLEY, SHUMAN IS "CARELESS OF FACT, IRRESPONSIBLE, VEXED, AND ALMOST HYSTERICAL."

OTHER FARM LEADERS HERE ARE DISTURBED BY DETERIORATION OF AGRICULTURE FRONT. SAY FARM VOICE IS GROWING WEAKER AND MORE DIVIDED EVERY YEAR.

INSECTS CAN BE CONTROLLED BY CHEMICAL STERILANTS, SAY U.S.D.A. SCIENTISTS. SEVERAL CHEMICALS FOUND TO PREVENT REPRODUCTION. EFFECTIVE AGAINST STABLE FLIES, HOUSEFLIES, MOSQUITOES, AND BOLL WEEVIL.

TAXATION OF FARM COOPERATIVES BOTHERS FARM PEOPLE HERE. REPORT CIRCULATES THAT HOUSE TAX-WRITING WAYS AND MEANS COMMITTEE HAS BILL THAT WOULD SERIOUSLY IMPAIR COOPERATIVE FINANCING.

FARM INCOME NEXT YEAR IS EXPECTED TO BE ABOUT SAME AS IN 1961, WHICH WAS $1 BILLION ABOVE 1960. PORK IS ONLY MAJOR ITEM WHICH MAY SHOW PRICE DECLINE.

★ ★ ★

In YOUR next issue!

WATCH FOR PROTEIN SHORTAGE — WITH CORN SILAGE . . . A report from North Carolina indicates that unless some legume hay is fed, you may need to increase the protein in the grain mix to as much as 25 per cent to avoid a serious protein shortage.

HOW WE GUARD AGAINST DISEASE . . . The fourth in our popular Hoard's Dairyman ROUND TABLE series features five of the nation's top dairymen who discuss their herd health programs. Mastitis, milk fever, calf diarrhea, and acetonemia are the most troublesome.

THE ANNUAL INDEX . . . In response to the many requests from our readers, an index of more than 2,000 articles that have appeared during the year will be published.

AND MANY MORE . . .

Easy TO ORDER OR RENEW!

HOARD'S DAIRYMAN
Fort Atkinson, Wisconsin

☐ New
☐ Renewal

I enclose $_____ Please send me Hoard's Dairyman for _____years.

Name_____R. F. D._____

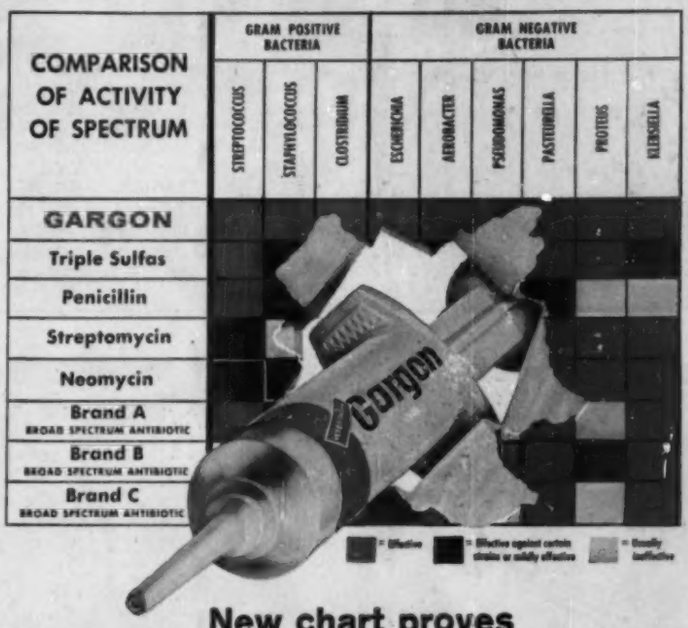
P. O._____State_____

SPECIALS

3 years $2.00 - 5 years $3.00 (Reg. price 1 year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

PROOF!



New chart proves

Gargon®

(Squibb Thiostrepton-Neomycin In Plastibase®)

kills 9 types of mastitis germs

including strains of staphylococci resistant to other antibiotics.

When you treat mastitis, do you get *complete* control? Send for Squibb's free new "Comparison of Activity of Spectrum" chart. It lists several antibiotics (and the triple sulfas) widely used to treat mastitis... then compares the "activity" of each treatment against each of the 9 chief kinds of mastitis bacteria. You may be surprised to learn that your present treatment does NOT effectively control as many as 5 or 6—or even 7—of the 9 germ types!

GARGON GIVES FAST, THOROUGH MASTITIS CONTROL. Two kinds of mastitis germs—streptococci and staphylococci—cause more mastitis than all others put together. (Staphylococcal mastitis is usually hardest to control.) Gargon gives fast control of both "strep" and "staph"—*even strains that have become immune to other antibiotics.* Gargon controls all 9 types of mastitis germs with a *broader* antibacterial spectrum than the 3 "broad-spectrum" antibiotics, penicillin, triple sulfas, streptomycin or neomycin.

GET FREE CHART. Learn why Gargon gives you today's most dependable mastitis control. Write SQUIBB, *Veterinary Dept.*, 745 Fifth Ave., New York 22, N. Y.

NO RESIDUES IN MILK with exclusive GARGON formula—simply withhold milk for 72 hours after final treatment. Gargon contains the exclusive Squibb antibiotic, *thiostrepton*, plus neomycin. (Note: Milk taken from dairy animals within 72 hours after the latest treatment for mastitis must not be used for human consumption.)

SQUIBB DIVISION Olin N.Y.

GARGON® and PLASTIBASE® are Squibb trademarks

SQUIBB A NAME YOU CAN TRUST

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Headline hunter

Why should we pay our hard-earned dollars for advertising when one headline-hunting pseudo doctor can take away more milk customers in one speech than all our advertising can gain?

[Enclosed with this letter was a clipping from the October 30 Louisville Courier-Journal, headlined "Milk drinking called road to heart attack — doctor urges coffee for school children instead of tax-bought 'national suicide.'" The article reported the recommendations of Dr. W. W. Sackett, Jr., of Miami, who is chairman of the public-policy commission of the American Academy of General Practice.]

If the National Dairy Council would challenge one of these so-called coronary experts to a public debate and make him show proof that use of dairy products causes heart attacks, perhaps there would be less front page articles and we could get some free advertising.

I have just finished reading a newspaper article (front page, of course) attacking the use of milk. This article is full of inconsistencies; however, many people will take it for the gospel truth. Result? Less milk consumed.

Indiana HARVEY LOWELL

Back 20 years . . .

I was disappointed by the answer given the South Dakota dairyman in the "case history" appearing in your September 10 issue. To suggest a reduction of concentrates below 10 or 12 pounds for cows milking 80 pounds daily takes dairying back 20 years.

The reply refers to a 1938 test where hay was restricted to five or six pounds a day with a result in large fat drops in the fat test of the milk. The South Dakota dairyman indicates his cattle receive all of the hay and silage they will eat, and I seriously question his fat drop resulted from the failure to secure sufficient fibrous material for proper rumenation.

I am assuming this dairyman is feeding about in the manner he has been feeding for several years, but this fat drop has just occurred this year.

It is possible the feed manufacturer may have changed formulations and has included some ingredient that is not proving satisfactory, but I doubt if their problem rests there. I believe it will be found to rest in the roughages themselves. Because in previous years they apparently were satisfactory, I think it might be reasonable to expect they will again prove to be satisfactory in other years.

So. Carolina R. MACPHERSON

Old copies available?

In our farm papers and magazines here in Australia I have read many informative articles originating in the columns of Hoard's Dairyman. I'm wondering if any of your readers have back copies of Hoard's Dairyman and if they would send them to me. I will gladly send them the postage.

I would also like to correspond with a U.S. farmer. I manage a 250-acre dairy farm near Sydney, N.S.W., and am very interested and eager to learn of new and progressive farming methods.

ERIC L. BATES
"Woodlands"
Mulgrave nr. Windsor
New South Wales
Australia

Opposes Sanitation Act

The editorial, "Comedy of excuses," in September 25 issue of Hoard's Dairyman is very poor reasoning. It is your right to advocate the U.S. Public Health regulations for milk, if you like. But you should not state that you support such regulations in order "to wipe out duplication of inspection." For that is just what you are asking.

Dairymen in Pennsylvania, and in many other places, have spent huge sums of money to meet "health" regulations for quality milk. Many of the regulations have nothing to do with milk quality, but are forced on us.

Now some of us are faced with meeting U.S. Public Health regulations so that our buyer may sell milk in Maryland, where such regulations are required by law. The usual result follows. The added expense and trouble have no relation to quality milk. But they do duplicate the same old expensive adherence to the requests of ignorant bureaucrats.

Quality milk is a must. But when we are already producing milk of less than 10,000 bacteria, why should we be required to add expense onto expense? It makes no sense at all, but it does add political jobs and help increase taxes.

We have nothing to fear from Midwest milk so long as transportation is so expensive. It cannot be sent into the eastern markets un-

(Continued on page 1144)

"This extension phone is the best buy on the place"

Jack Snidow milks 260 cows on his dairy near Brighton, Colorado.

With five men helping him, he's keenly aware of the value of man-hours. That's why he installed an extension phone in the milkroom when he mechanized his operation with an 8-cow parlor and bulk tank.

That was 18 months ago. Today Jack says, "This extension phone is the best buy on the place. If a man doesn't have a phone handy, he'll put off his calls – and then maybe forget some of them. Then a lot of things can happen – he'll run out of grain, or turn up short of help."

Before Jack ordered his milkroom extension, he figured out how much walking he'd been doing between the house and barn. *It was about a mile a day.* In a year, that's over 300 miles of unnecessary roadwork!

If you want to make your time more profitable, take a look around your place to see how much an extension can do for you. Then call your telephone business office.

BELL TELEPHONE SYSTEM

CHEVROLET DOUBLE-WALL CONSTRUCTION IS ONLY ONE EXAMPLE OF QUALITY THAT COSTS LESS ALL THE TIME YOU OWN THESE DEPENDABLE TRUCKS!

A pickup body is bound to get abuse but it doesn't have to show through. The inside wall of Chevrolet's double wall acts as a buffer, lets the outside wall stay looking nice—unlike pickup bodies made of single-sheet metal.

The load never touches the back of a Chevrolet pickup cab because cab and body are separate units. The safety and durability of this design are obvious.

Chevrolet double-wall cabs are insulated. You're warmer in winter, cooler in summer.

Not only are cabs and bodies double walled . . . so are tailgates. And they are supported by strong steel chains wrapped in protective rubber casings.

Some more examples of Chevrolet truck quality are shown at the right. They represent low cost. Not just when you buy the vehicle, but all the time you own it (which is the only way to figure it).

There isn't a stronger, tougher tailgate on any pickup. It's graintight, of course, double-walled for durability.

Select-wood body floor never rusts out the way metal does, gives you safer footing in wet weather. Steel skid-strips.

Independent Front Suspension gives truck, load and driver greater protection from road shock. A real quality feature!

You can go almost anywhere in any kind of weather with Chevrolet 4-wheel drive trucks. A wide variety of models.

Corvair 95 Rampside. Easiest loading pickup. Air-cooled engine. Needs no water. Engine in rear for greater traction.

Chevrolet offers a complete line of pickups, stakes, carryalls and chassis-cab models for every farm need.

THERE'S A NEW WORLD OF WORTH IN 1962 CHEVROLET JOBMASTER TRUCKS

CHEVROLET

Keep 'em milking with Pen-FZ

two-fisted approach

wins the fight against mastitis

Pen-FZ offers a powerful combination — a "two-fisted" approach to mastitis control: (1) exclusive nitrofurazone . . . (2) plus an antibiotic.

Antibiotics slow reproduction of mastitis organisms, but do not kill. The nitrofurans kill germs by starvation.

Containing both, Pen-FZ achieves effectiveness unequalled by other mastitis treatments.

Keep *your* cows milking . . . protect *your* herd health with Pen-FZ. Available in syringes or tubes.

Note: Milk from producing cows should be withheld from human consumption for 72 hours following treatment with Pen-FZ.

FREE 2-oz. jar of Udder Ointment in special Pen-FZ Udder Care Kit. Look for the colorful counter display at your drug, feed or farm supply store. Ask for "Pen-eff-zee."

Treat dry cows to help prevent "freshening flare-up"

If you have cows with a history of mastitis when in production, treat them when they're *dry* to help prevent "freshening flare-up."

Pen-FZ treatment of dry cows eliminates the problem of withholding milk from market after treatment. To reduce mastitis recurrence in your herd, follow the Pen-FZ "dry cow" treatment program:

For average problem — inject Pen-FZ in each quarter after last milking.

For chronic problem—inject Pen-FZ in each quarter immediately after last milking. Repeat treatment once per week for 2 weeks.

Write for free mastitis folder, "Prevent Freshening Flare-up."

DAIRY HEALTH PRODUCTS THAT WORK

Udder Ointment — keeps udders in peak milking condition
Calf Scour Tabs — fights calf scours and pneumonia
POL — removes horns safely and painlessly
NFZ Puffer — protection against infection from wounds, excellent for pinkeye treatment.

AH-33

PUT MORE HEALTH INTO LIFE BY STARVING GERMS TO DEATH

nitrofurans

HESS & CLARK, Ashland, Ohio
Division of Richardson Merrell Inc.

(Continued from page 1142)

less it is practically stolen from the Midwest producer, as it has been for many years.

Pennsylvania JESSE KURTZ

To hold down surplus

I think our extension offices and farm organizations could do more to educate the dairy farmer on how to keep down production.

Some time ago (about August 30) I was in a sales barn and saw them sell six Holstein springers for an average of $205 each. These were cows that were close, with udders a little too large. They were 6 or 8 years old and large.

I believe these six cows would have brought an average of $230 if the owner had sold them when he was ready to let them go dry. He would have saved feeding them 60 or 90 days and received $25 per head more money. And they would not have been producing surplus milk the next 10 months. Surplus milk reduces our price.

I think the same is true of these dairy heifer calves (take home calves) that are sold in sales barns and slaughterhouses as the seller gets from $2 to $10 more for small calves that three years later are producing surplus milk to help cut down our price. We could pinch off the teats or brand for slaughter these small heifer calves which we don't care to raise.

Why don't dairymen in these dairy states help themselves? I have been told that dairy farmers in some dairy states are protected. A man cannot build a milking parlor and milk 100 cows. He must buy a dairy herd or farm and he cannot produce more per day or month than the former dairyman did. If he produces over his base, he must sell the surplus for about $2.50 a hundredweight instead of $6 per hundredweight. I think the dairymen in these central dairy states should do some serious thinking for themselves.

Minnesota GERALD SIMON

Canadians sell cheese "by clock," too

In your October 25 issue is an article by J. H. Frandsen, "A Dutch way of selling." He describes the sale of cheese by the Dutch clock method in Holland and advances the theory that it might be used with some merit on the American markets.

Our organization, The Ontario Cheese Producers' Marketing Board, has been using the Dutch clock method of selling Cheddar cheese in Ontario since 1956. The clock is situated in the city of Belleville and the cheese produced from Toronto east to the Quebec border is sold each week by this method.

A catalogue is prepared for the buyers, outlining in detail the registered number of the factory, the quantity and the grade of the cheese offered from each plant, together with the date of manufacture. The number of pounds included in the offering and the location of the grading station in which the lot of cheese is stored are shown for each lot of cheese to be sold.

When the cheese is offered for sale, the buyer has all the details he requires and, if he wishes to purchase a particular lot of cheese, he will stop the clock at the price he is prepared to pay. The clock is operated exactly the same way as outlined by Mr. Frandsen.

Canada J. A. JOHNSTON

We lifted a 1342-pound "L" Spreader to show off the strength of a 35 Loader and the long-lasting wood-and-steel construction of all John Deere Spreaders.

We hoisted a spreader **to prove a point***

*JOHN DEERE LOADERS can "dish it out"... wood-and-steel SPREADERS can "take it"!

Instant power . . . finger-tip power . . . up to 3,000 pounds of breakaway power is put at your command by John Deere Loaders. Makes manure-loading easier, faster than ever. You'll tear loose heaping bucketfuls . . . lift them up to 10 feet high. Dual hydraulic cylinders hold heavy loads for swift maneuvering, bull's-eye dumping. High truck beds are no problem for these giraffe-necked loaders.

Take your pick! John Deere offers you three powerful loaders: the 35, 45, and 45-W. There's one to match nearly every John Deere Tractor.

Specially treated wood sides and bottoms, held securely by steel side braces and bed, make John Deere Spreaders rigid "one-piece" units . . . no twisting or sagging under heavy loads.

There's a spreader for you: 76-bushel "L" and 95-bushel "R," if you prefer a ground-drive; 95-bushel "W," 118-bushel 33, and 134-bushel "N," if you want PTO power for dependable all-weather service. See your John Deere dealer now . . . pick a manure-handling team tailored to your needs and pocketbook. Use the John Deere Credit Plan.

JOHN DEERE • 3300 RIVER DRIVE, MOLINE, ILL.

JOHN DEERE design, dependability, and dealers **MAKE THE DIFFERENCE**

JOHN DEERE

Blood in the urine . . .

. . . may be a sign of urinary tract infection. Pyelonephritis, if it is not stopped early, can be highly fatal.

by E. A. Woelffer, D.V.M.

WHEN a cow passes bloody urine, it is an indication something is wrong with the urinary tract. But it is only one of several signs of injury or disease. There may be abnormal constituents in the urine, a decrease or increase in volume, and there may be pain and difficulty in urination.

We will confine our discussion, however, to a common specific urinary tract infection in cattle. It is called contagious bovine pyelonephritis and is caused by the organism *Corynebacterium renale.*

It causes a chronic purulent (pus) inflammation of the bladder, ureters, and kidneys. Although the disease is contagious, it does not spread readily in a herd, particularly in well-managed herds. If the disease is not checked early, it is highly fatal. Economic losses are due mainly to deaths.

Obstruction of urinary tract . . .

Other organisms also are capable of producing symptoms of the urinary tract. They may be present alone or associated with *Corynebacterium renale.* Often there is temporary or permanent obstruction of part of the urinary tract, resulting in stagnation of urine.

It (the obstruction) serves as a predisposing factor to this kidney infection because of its *(C. renale)* peculiar ability to grow in urine that is stagnant.

Pyelonephritis affects cattle primarily; however, sheep are occasionly affected. Young animals seldom have the disease and cows appear to be more susceptible than bulls. An increase in clinical cases usually is seen in colder seasons. Heavily-fed, high producing dairy cows appear most susceptible.

Symptoms . . .

Early signs of the disease vary considerably in individuals. One of the first indications is blood-stained urine. In other cases, a first sign may be an acute attack of colic. The pain passes in a few hours.

Such attacks are caused by obstruction of a ureter (one of two tubes that lead from the kidney to the bladder) caused by a collection of mineral salts or dried particles of pus or tissue debris (kidney stone).

This acute attack may be confused with an acute intestinal obstruction. In most cases the onset is gradual. The temperature may range from normal to 104 or 105 degrees. As the disease progresses, there is loss of appetite and weight, and a drop in milk yield. Besides blood in the urine, there may also be pus, mucus, and tissue debris.

Urination usually is more frequent than normal and there is considerable dribbling of urine. Often the condition is painful and this is shown by trampling with the hind legs and kicking at the belly. Following an acute attack, the animal appears to have recovered, only to be followed later by another remission.

Veterinarians seldom have difficulty palpating abnormalities of the urinary tract. In established cases, there may be thickening and contraction of the bladder wall, and enlargement of one or both of the ureters.

The terminal portion of the latter may be palpated through the floor of the vagina over the neck of the bladder. One or both of the kidneys may show enlargement, absence of lobulation, and pain on palpation.

In the early stages, rectal examination may be negative. Gross changes in the urine together with palpable abnormalities in the urinary tract are usually sufficient basis for diagnosing bovine pyelonephritis. The responsible bacteria usually are present in the urine.

Prevention and treatment . . .

C. renale is frequently transmitted by direct contact. The vulva and vagina of a clean cow may become contaminated by use of brushes, through service by an infected or contaminated bull, or by the careless use of a catheter.

Prior to the use of antibiotics, treatment of pyelonephritis was seldom successful. The administration of sodium phosphate (monobasic) is frequently followed by clinical improvement, particularly in the early stages. Seldom is there complete recovery from such treatment. In early cases, large doses of antibiotics given in a five-or-six-day series will often result in permanent recovery.

In well-established cases, however, permanent recovery is seldom possible. General improvement following treatment can usually be anticipated. An improved appetite, an increase in milk yield, and a clearing of the urine will generally be observed. The administration of enzymes may enhance recovery rate when used in conjunction with antibiotic therapy.

Other than the above precautions, no specific control measures can be recommended. However, isolation of infected animals and destroying infected bedding and litter will help reduce the number of organisms. This, in turn, will decrease the spread of infection to healthy animals.

A motorist was once driving in the country when suddenly his car stopped. He got out of the car and was checking the spark plugs when an old horse trotted up the road.

The horse said, "Better check the gas line," and trotted on.

The motorist was so frightened that he ran to the nearest farm house and told the farmer what had happened.

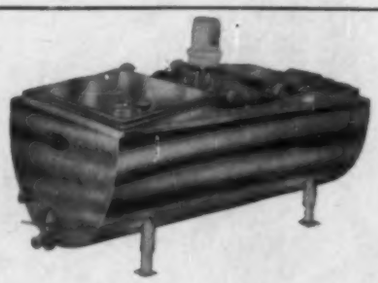
"Was it an old horse with a floppy ear?" inquired the farmer.

"Yes! Yes!" cried the frightened man.

"Well, don't pay any attention to him," replied the farmer, "he doesn't know anything about cars."

why solar pioneered with 100% stainless steel

Sanitary regulations require you to use stainless steel in the inner shell of your cooler. Solar thinks stainless steel is so important that they use it 100% in the construction of their coolers . . . There is no chance for corrosion to shorten the life of your Solar tank. 100% stainless steel is the reason for Solar's lifetime of service.



*FREE . . . $79.95 set of stainless steel cookware with every solar cooler!**

Get a big bonus by switching to bulk right now. Just have a *Solar* bulk milk tank installed, and *Solar* will send you a $79.95 set of Scandia-Ware absolutely free. So make the switch to bulk now . . . Switch to *Solar* and let *Solar* put stainless steel in your kitchen too.

*Offer expires December 24, 1961. Void where prohibited, taxed or otherwise restricted by law.

SOLAR

USI

SOLAR PERMANENT
Div. of U. S. Industries, Inc.
TOMAHAWK, WISCONSIN
MELROSE PARK, ILLINOIS

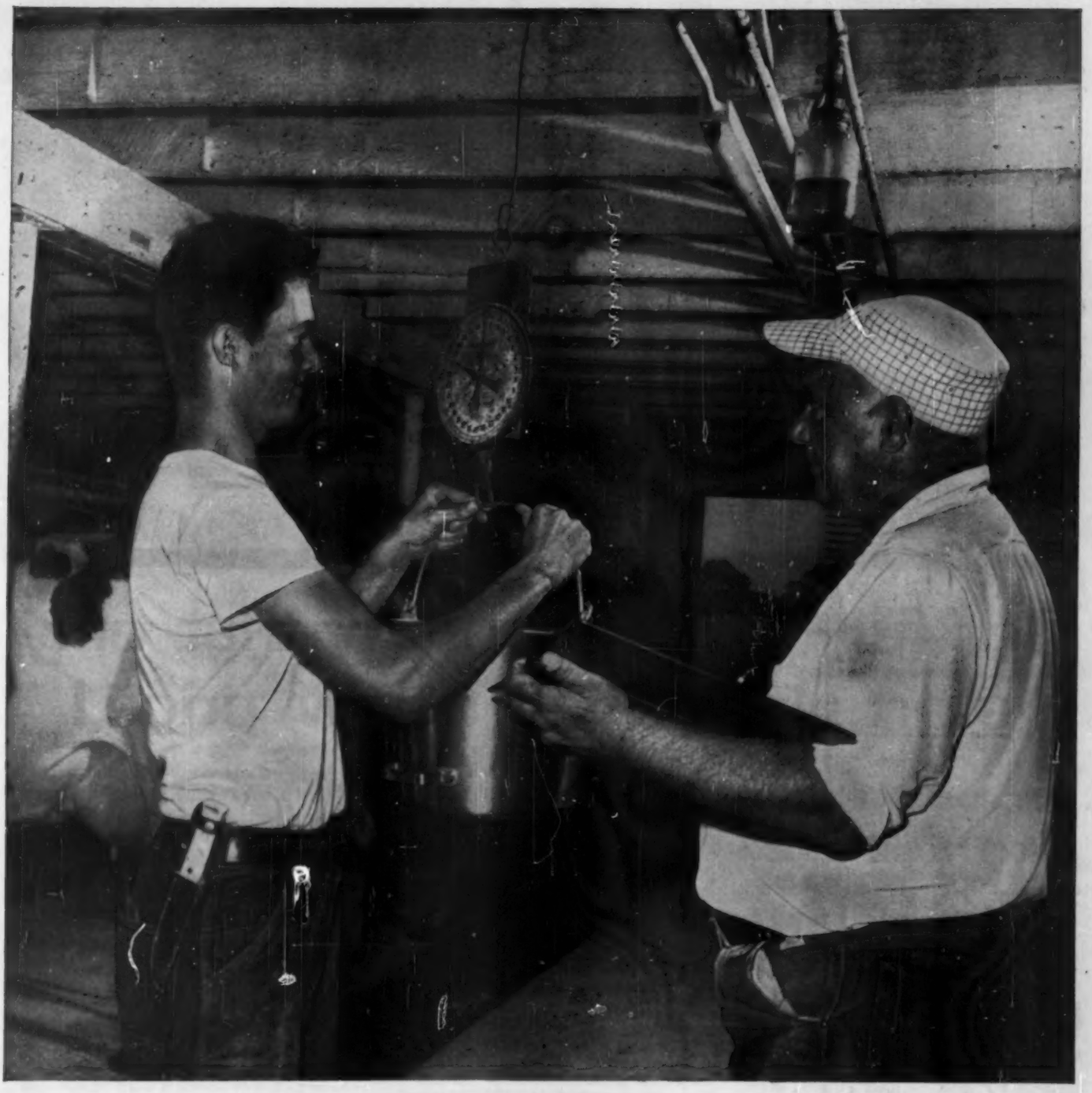
SOLAR PERMANENT
P. O. BOX 308, MELROSE PARK, ILLINOIS HD-12

Send me name of nearest dealer quick so I can get my free cookware. Also, information on products checked below:

☐ Atmospheric Tank ☐ Portable Pipeline
☐ Vacuum Tank ☐ Lo-Por Strainer
☐ Rigid-Line Transfer System

Name_____
Address_____
City or Town_____ State_____
Please check one.
Producer____ Sanitarian____ Student____ Processor____

Better Milking Equipment . . . For Better Farm Living



"Daily production jumped 2 lbs. per cow after we switched to Murphy's..."

"What really surprised us was that we got these results with less feed," says Bill Blank of East Troy, Wisconsin. "We fed a pound of grain for each four pounds of milk before. Now, with the mixed Murphy ration, we only feed one-for-five. *We cut purchased feed cost to less than 10¢ per cow per day!*

"That's not all: Our butterfat test went up from 3.6% to a steady 3.8% after we switched. The records kept by my son show that milk production is holding steady, too.

"Veterinary bills are kept to a minimum," Bill continues. "Cows —even first-calf heifers—clean better after calving. Mastitis is no longer a problem. Overall health is excellent."

Bill farms 230 acres near East Troy with the help of a hired hand and two sons. Besides his 50-cow milking herd, 10 dry cows, and 45 replacement stock are also on the recommended Murphy program.

Why such outstanding results with Murphy's Cut-Cost® Dairy Concentrate? It's because Murphy's supplies *only* the extra proteins, minerals, and vitamins to balance-up farm feeds... put health and profit into the ration. Feed it mixed or top-feed just one 10-oz. cupful at each milking. See your Murphy dealer soon.

Murphy's

LIVESTOCK AND POULTRY FEEDS

MURPHY PRODUCTS COMPANY · BURLINGTON, WISCONSIN

'62 Ford Styleside—longer wheelbase, stronger design. Long 114-inch wheelbase and smooth springing combine for a better pickup ride. One-piece cab and body design gives you extra capacity, extra strength!

Get full-time economy that only starts with Ford's low price!

With either 2-wheel or 4-wheel drive, Ford Farm Pickups save full-time on gas, on oil, on tires!

The money you save when you buy your '62 Ford Farm Pickup is just a taste of the savings to come. You save on gas with Ford's modern Six and V-8 engines. Save on oil—go 4,000 miles between oil changes. Save on tires with Ford's true-tracking *truck* front suspension that, compared to suspensions used by some other makes, can double front tire life. Save on maintenance — save *wherever* there's a way to save! The full record of Ford's outstanding economy, covering three years of independent tests, is in Ford's Certified Economy Reports. See your Ford Dealer for proof that a Ford Pickup can save the most on your farm!

FORD TRUCKS COST LESS
SAVE NOW...SAVE FROM NOW ON!

FORD TRUCK CERTIFIED ECONOMY REPORTS

PRODUCTS OF Ford MOTOR COMPANY

Ford 4-wheel drive—high power, high capacity, low price. The right truck for sure going, sure savings! No other make offers such capacity (up to 70 cu. ft.) with such power (up to 160 hp) at so low a price!

HOARD'S DAIRYMAN

FOUNDED IN 1885

by Peter Dorner

Profits are lost on thousands of farms, not for lack of records, but lack of time invested analyzing them. Here are examples.

FARM records have various uses. Some of the more obvious ways in which they are used include the following:

Filling out income tax and social security.

Providing a lender with information in obtaining credit.

Measuring the financial progress made on the farm.

However, here I am primarily concerned with using records to help study the farm business and plan changes and improvements on the basis of such a study.

I like to think of records as a **tool** which we use to more intelligently direct our future farming operations. It is through a well-kept record that we can learn and benefit from past mistakes, as well as take advantage of our past good judgments.

True, we all have a mental record of what has gone on in the past. But our memory very often deceives us and we forget or "remember incorrectly" the things that occurred.

Planning for more net income . . .

The question concerning us now is: Can we use our farm records to make planning lead to more profitable farm operations, or must we trust everything to fate and luck without any help from our past experiences which our farm record would show?

It is rather obvious that a well-kept record can be of some use. Let us take a look and see how it can be accomplished.

First, we must remember the most complete record is nothing more than a collection of facts. To be useful in planning, these isolated facts must be analyzed and interpreted. We must be able to determine **what they mean.**

In other words, we must, from time to time, "study" our records to find the story they have to tell us.

There is little satisfaction in merely keeping records. The payoff comes in analyzing and studying them, shaping our farming plans on the basis of the evidence revealed by this analysis, carrying out these plans, again recording the results, and so forth.

Recording is merely "keeping records." Analysis, interpretation, and planning is the means of "using them."

Several months ago I talked with a farmer about his farming operations. He was concerned with declining prices and wondered if there was anything he could do on his farm that would help to maintain his income.

I suggested we take a look at his last year's record, which was fairly complete and well-kept. We found quite a story in that record. I shall use a few examples to illustrate.

One of the first things we observed was the fact that he had spent $160 for fertilizer and $1,605 for feed. Of this money spent for feed, we found $750 had been used to purchase corn for his large hog enterprise.

These are a few of the items which were recorded. Now, what do they mean?

We looked at his crop production record to see what that would show. Here we saw that fertilizer was used on a 10-acre field of corn. Another cornfield, 20 acres in size and of similar quality land as the 10-acre field, had received no fertilizer. A soil test taken the previous year showed the availability of mineral nutrients (P and K) to be practically the same for both fields. The only difference, then, seemed to be in the fertilization.

For the 10-acre field he had recorded a yield of 92 bushels per acre, and for the 20-acre field he had recorded a yield of 58 bushels per acre.

In other words, the $16 per acre fertilizer cost resulted in an additional 34 bushels (92 — 58 = 34) of corn. The corn he was buying cost him $1.15 per bushel. At that price, these 34 additional bushels were worth $39.10 (34 x $1.15=$39.10). In terms of net return over the cost of the fertilizer, this meant an additional $23.10 per acre ($39.10 — $16 = $23.10).

144 per cent return . . .

Or to put it another way, for each $1 invested in fertilizer, he received $1.44 over the cost of the fertilizer $\frac{(\$23.10}{(\$16.00} = \$1.44)$. This is 144 per cent **net return** on each dollar so invested.

This particular farmer could have increased his profits considerably by investing in more fertilizer rather than buying the corn.

As I indicated previously, merely keeping the record didn't help this farmer. But after studying and analyzing this record, after finding out what the meaning was of "facts" contained in the record, he could do a better job of planning. The analysis made possible a more intelligent direction of his future farm operations.

Our study of this record revealed many other similar relationships. I do not mean to imply, by using this one example, this is the most important relationship to look for or that other farmers would necessarily find their soils so responsive to fertilization.

Furthermore, on many of these practices we can get a good general understanding of how effective they would be on our farm by finding out the results achieved in carefully controlled experiments. However, since experimental conditions can never be duplicated exactly on our farms, these things must be tried and tested by each individual farmer along with a recording and studying of the results to determine how appropriate and valuable they are to his particular situation.

The point is simply this: If we have limited money and other resources to work with (and most of us are in that position), it becomes crucial that we find those areas in our farm business that would return us the most net income per dollar invested.

In the example used above, suppose this farmer has, or can obtain through the use of credit, $500 to invest over and above his fixed commitments of taxes, insurance, interest, mortgage payments, family living expense, and so forth. Now, let us suppose this is all the money he can possibly obtain for this production season.

A matter of net return . . .

If he can locate the areas in his business that will give him the greatest net return per dollar invested — whether this be feed, fertilizer, fencing, machinery, or whatever — he will receive more net income from his farming operations than if he had invested this money in some of the less profitable areas.

For example, if he invests this $500 in some area of the business and gets a net return of 10 per cent, this will enhance his net income by $50 ($500x10%=$50). But if it can be invested in another alter- *(Turn to page 1181)*

The author is an agricultural economist at the University of Wisconsin.

Farm Flashes...

seasonal reminders and research notes for dairymen

OVERCOMING HAZARD FROM RADIOACTIVE 131

While radioactive iodine 131 can be one of the most hazardous problems of food contamination during the first 60 days following a nuclear attack, much can be done to overcome the hazard it presents.

Dr. Frank A. Todd, U. S. Department of Agriculture official, reports that iodine 131 would contaminate almost all fresh foods. Because radioactivity in the material is so short-lived, however, several courses are open to remove or reduce the danger to humans. For example, farmers could confine milk cows to the barn and feed them safely on forage and feed that had been stored for 60 days. Also, ensilage that had been stored for this length of time could be fed safely.

Should iodine 131 get into fluid milk, that containing relatively low amounts of radioactivity could simply be stored for a week or so until the radioactivity decayed. Today's milk will maintain good quality for this period if it is stored at usual refrigeration temperatures.

Should iodine 131 level be high enough to require 30- to 40-day storage before radioactivity is dissipated, Dr. Todd suggested it would be possible to freeze market milk already packaged, hold it for the required time, and later thaw it out and distribute it.

Other acceptable means of holding milk would include processing it as dried milk, canned milk, cheese, or butter. In any case, there should be no disposal or destruction of milk contaminated with iodine 131.

TIPS ON FEEDING POTATOES

A report from New Jersey indicates that potato growers have cull and surplus potatoes which can be used to supplement your feed supply for dairy cattle. They are reportedly a good buy at $8 per ton or less.

If you feed potatoes, the following tips are offered:

1. Feed in combination with other feed.
2. Start feeding gradually to avoid stomach upsets and scours.
3. Don't feed more than 40 pounds per day to large cows, and feed somewhat less to the smaller cows.
4. To avoid choking, chop large potatoes or feed under a bar so animal keeps its head down while eating.
5. Avoid feeding large amounts of sunburned, sprouted, or sprayed potatoes.
6. Do not feed frozen potatoes.
7. Fresh potatoes are almost equal to corn silage in feeding value and have twice as much nutrients as wet beet pulp.
8. Feed after milking to avoid off-flavor in milk.

A LIVE CHRISTMAS TREE

Some folks have been successful buying a live Christmas tree which can be set out in the yard for an extra evergreen tree after enjoying it during the holidays.

According to an Ohio State University floriculturist, it has about a 50-50 chance of staying alive.

Since the main problem with a balled and burlapped Christmas tree is keeping it well watered, put the ball of soil surrounding the tree roots in a bucket of water until it is thoroughly soaked. Then pour off the water and keep the tree outside until just before Christmas. The shorter the time the tree is inside, the better will be its chances for survival.

You may want to dig a hole for the tree ahead of time. It will be much easier than trying to dig in frozen ground. You can put the soil in the garage where it won't freeze; then use it when you plant the tree by tamping it around the ball. Be sure to make the hole large enough to contain the ball, with room to spare. A diameter of about 2 feet larger than the ball is suggested.

Remember, the tree eventually may get 20 to 25 feet tall, so don't plant it too close to the house. The back yard or a corner of the lot could be a good location.

NO ADVANTAGE FOR STILBESTROL

Feeding tests conducted thus far have failed to show that stilbestrol has an effect on either production or feed utilization in dairy cows. It has also been shown that there is no advantage for stilbestrol in fattening dry cows for market or in stimulating growth rates in dairy heifers.

A University of Illinois dairy scientist, Leo Fryman, points out that small amounts of stilbestrol (10 to 15 milligrams per cow per day) can be fed with the grain mixture with no adverse effects on conception, gestation, or estrus cycle. However, feeding such low levels of the growth stimulant will not boost production or feed utilization. In a Kansas study, cows fed higher levels than this were subject to abortion.

While Cornell studies show that stilbestrol will stimulate weight gains in dry cows, cost figures indicate the practice is not profitable.

University of Colorado tests show that safe amounts of stilbestrol will not stimulate growth in dairy heifers. In the trials, 10 milligrams of stilbestrol per day were fed with no growth-stimulating effects. Higher levels of stilbestrol may cause breeding problems in open heifers.

"Try thinking of it as a reducing machine."

REGULAR CORN BEST FOR SILAGE

Recent tests at the University of Illinois indicate dwarf corn has suffered another setback in its struggle to replace regular corn silage in the dairyman's feeding program.

There was no advantage for dwarf corn over regular corn in silage tests with dairy cattle. The big problem with the miniature corn was that it could not match regular corn in tons of forage produced per acre.

Dairy researcher John Byers points out that, pound for pound, dwarf corn has significantly more total digestible nutrients than regular corn. The miniature corn also is much easier to harvest and will stand up against more punishment from wind and rain.

These advantages, however, are offset by the dwarf's lower forage-producing ability.

Byers first compared dwarf and regular corn for silage in 1960. He noted a lower forage yield per acre for dwarf — 5.54 tons of dry matter per acre compared with 6.59 tons for regular corn.

However, he was impressed by the higher TDN figures for dwarf corn — 77.7 per cent compared with 70.88 per cent for the same amount of regular corn.

This year, plant population was boosted from 16,000 to 21,000 per acre for both types of corn, the thought being that the higher population might help dwarf compete in tons of forage produced.

The results: The regular corn showed an even bigger production advantage over dwarf. Green forage yield rose 1.2 tons per acre for the regular corn and actually dropped for dwarf corn.

Increased competition for light at heavier planting rates may have been a factor in dropping dwarf corn forage yields in the test.

HEATING CABLE FOR SWINE COMFORT

Midwestern hog raisers may find that using electric heating cables in farrowing house floors is an efficient method of space heating. At the University of Illinois, an electric cable was installed in a new farrowing house.

Besides providing uniform heating, the system is safe and economical to operate. Other advantages are temperature control as well as ease of installation and maintenance. It is estimated that it costs about $17 to install a unit in one farrowing stall.

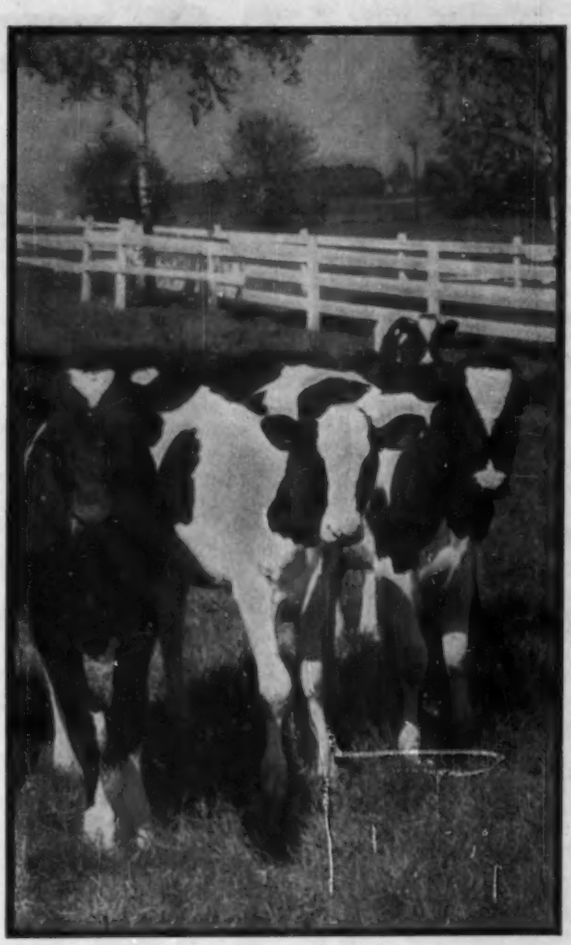
Should you build or remodel your farrowing house next summer, it would be a good time to consider laying a cable. One could be placed on the old floor with a layer of concrete poured on top.

Both farrowing stalls and standard farrowing pens are well suited to cable use. The creep areas at both sides of the stall are perfect for electric cable heating. It also works well in the creep at the end or corner of a farrowing pen.

For best results, insulate ceilings and walls. Also provide proper ventilation. It is well to provide a vapor barrier in floors, walls, and ceilings.

Dust shuts off considerable light as it gathers on lamp bulbs, tubes, diffusing bowls, and shades. When bulbs and flourescent tubes are cool, clean them with a damp, soapy cloth. Be sure to wipe dry before replacing. Don't immerse bulbs or tubes in water.

Thinking of raising heifers?



Don't expect to get rich fast. Some farmers are doing it successfully while others have given it up. Here are some of the facts you will want to consider before you make a major investment.

by Glen C. Pulver

WITH increased specialization in dairying and with more cows per dairy herd, there is an active market for heifers to add to the milking line. Wisconsin-raised heifers are in demand locally and throughout the United States. In 1958, about 200,000 head of dairy cattle and calves were sold outside of Wisconsin, and an equal number were sold within the state. These sales amount to 25 to 35 million dollars a year.

In response to this demand, many farmers are raising dairy replacements as a special part of their business. In a commercial heifer enterprise, the farmer usually gets calves at 4 to 5 days of age. (Calves younger than this must have colostrum milk.) He either buys or contracts for calves. They are raised and sold or returned to the contract supplier as bred heifers at 24 to 30 months of age.

In California and other states where dairying is a highly-specialized business, "heifer factories" are raising replacements on a contract basis. Managers of large milking operations contract to supply the "custom grower" with calves.

The custom grower agrees to raise the heifers and to have them bred as the owner specifies. The contract spells out further conditions of ownership and death loss risk.

The bred heifers are shipped to the milking operation just before calving. The custom grower receives a fixed amount per pound of gain or per month. Typical charges in Southern California are 21 to 25 cents per pound of gain.

A farmer might consider specializing in raising dairy replacements for one of the following reasons:

- His farm may be located where milk markets are poor, but close to buyers of bred heifers.
- Present facilities may not be adequate to meet current quality standards.
- Many part-time farmers are looking for an enterprise with low capital and labor requirements to supplement family income.
- Some farmers do not want or are unable to milk cows.
- Buildings, pasture, and other feed suitable for young stock may be available.
- Farmers in the area with large herds may be looking for someone to raise their heifers.

The author is a member of the department of agricultural economics, University of Wisconsin.

Profit margins slim . . .

Any farmer considering going into commercial heifer production must recognize that at best profit margins in raising heifers are slim. Prices for replacements have been low. The belief that home-grown heifers are cheap to raise is reflected in the price of purchased stock and the amount paid the custom raiser.

Feed is the largest single expense in raising a dairy heifer. Table 1 (page 1175) shows kinds of feed and costs for five periods in a calf's growth from birth to two years. The figures are based on a calf weighing about 80 pounds at birth. Feed cost in Wisconsin ($143.94) is considerably less than in eastern or western states. California reports feed costs of $190 and New Jersey, $220 per heifer.

The feed requirements from birth to 24 months include 7,050 pounds of hay and 2,800 pounds of hay equivalent in pasture. In addition, 800 pounds of home-grown grains are used in the grain ration. Assuming per-acre yields of 65 bushels of corn and 2.5 tons of hay, 2.2 acres will provide enough feed to raise one heifer through the 24-month period. About 1.1 acres would be needed per heifer each year. One hundred crop acres would provide feed for about 90 heifers, 45 heifers to be sold each year.

The amount of labor required to raise a heifer varies a great deal. The number of heifers being raised, their age, the season of the year, and conveniences in housing and equipment affect labor requirements. Estimates of labor for the 2 years' growth range from 25 to 40 hours. If only 10 to 30 heifers are kept, about 35 hours of labor will be needed per heifer. Larger enterprises may require as little as 25 hours.

Requirements in building size and structure vary with the age of heifers. Young calves need a tight building with a concrete floor similar to a regular stanchion barn. Older heifers can be housed in pole-type sheds. The space required (without feed or service alleys) for each dairy calf is:

Individual calf stall — birth to 1½ months — 15 square feet per calf.

Group calf pen — 1½ months to 12 months — 20 to 25 square feet per calf.

Yearling heifers — 12 to 24 months — 40 to 55 square feet per animal.

In addition, calf pails, calf-starter mixing equipment, straps, tags, dehorner, feed-handling equipment, and water heater will be required. If new construction is used, capital investment in buildings and equipment would be about $100 per heifer. Using existing facilities may reduce this investment. Housing and equipment costs will be about $14 per heifer for the 2-year growing period.

Table 2 (page 1175) summarizes costs of raising dairy heifers in Wisconsin.

Having a near and dependable source of calves is a major prob- *(Turn to page 1175)*

HOARD'S DAIRYMAN ROUND TABLE

Rye grass, rye, oats, or mixtures with clover, wheat, and vetch are preferred by these southern dairymen to provide grazing during the period of September through June.

TOP-QUALITY winter grazing has much to do with how southern dairy herds produce. Because of the variety of crops used as well as the differences in how winter grazing crops are established and managed, we felt it would be an excellent subject for our Hoard's Dairyman Round Table.

Hoard's Dairyman editors have visited all five of the farms whose owners are participating. All have a successful operation and all depend heavily on winter grazing.

Ray Tidwell, Douglasville, Ga., operates 1,800 acres of which 650 are cropped. His 400 Holsteins are about 98 per cent registered, with 180 in milk. His latest HIR average is 13,006 pounds milk, 472 pounds fat.

Charles Leis, Viola, Kans., has a 560-acre farm with 430 acres tillable. He milks 51 grade Holsteins that last year averaged 13,320 pounds milk, 521 pounds fat.

H. D. Elizey, Franklinton, La., is superintendent of the Southeast Louisiana Dairy and Pasture Experiment Station, also operates an 840-acre farm. Of this, 410 acres are farmed; the rest is in timber. He has a herd of registered Jerseys and grade Holsteins (296) of which 131 are in milk. The Jerseys average about 7,000 pounds milk on DHIA, the Holsteins, 11,300 pounds.

William Brake, Rocky Mount, N. C., has an 84-acre farm with just 50 in crops. His herd of grade Holsteins includes 37 in milk that on DHIA last year averaged 12,849 pounds milk, 518 pounds fat.

J. B. "Dutch" Isbell, Sanger, Texas, operates a 230-acre farm with 105 acres in crops. He milks 63 grade Holsteins that average 13,500 pounds milk, 480 pounds fat.

Here are their answers to our questions on winter grazing:

What are the best crops for winter grazing in your area? Why?

Tidwell: Rye alone, or with rye grass; oats alone, or with rye grass. (However, our most dependable winter feed is the 1,500 tons of silage we have stored.) These crops are more palatable and they will grow in the winter if weather permits. Oats and rye grass will produce more milk; rye will give more winter growth; fescue will not produce milk. All stay green if winter is not too severe.

Leis: A mixture of rye, wheat, and vetch. We like this mixture because it is easy to establish any time the ground is in shape. It can be sowed in late summer, fall, or spring. Wheat and rye are fast growing, recover fast after grazing, stay green all winter, and give me a chance to rotate the land to other crops. The vetch is a good soil builder.

Elizey: Since earliness is a factor that must be considered when selecting a winter grazing crop or combination, and because the entire seeded acreage cannot be established in a single day or week, we follow this procedure:

On approximately one-half of our winter pasture acres, we use a mixture of oats and rye grass. This mixture is seeded on the first planted one-half.

On the remaining one-half, we use rye grass alone. This is the last planted one-half.

If we had to select a single species, it would be annual rye grass. The per acre establishment costs are less than for other species; it produces a high-quality forage as measured by milk production; it grows well during the coldest period of the winter; it produces a heavy sod that will tolerate a considerable amount of trampling during prolonged rainy periods; it is versatile; and it is as high yielding, forage wise, as any alternative crop.

Brake: Abruzzi rye following tobacco in the latter part of August; Abruzzi rye and crimson clover following silage corn; Abruzzi rye, crimson clover, and rye grass mixture following Starr millet. Plantings are staggered from September 1 until November 1. Grazing then will be available from the summer Starr millet until the fall grazing becomes available. Hairy vetch broadcast on common and Coastal Bermuda pastures also is used.

These are easy to establish and give grazing into June. They are very palatable and the cows do well on them. They are annuals, staying green from October into June. I have to depend on temporary grazing crops to a great extent throughout the year. I have grown Ladino clover, orchard grass, and alfalfa, but have been unable to have a dependable grazing program with them on my farm which has mostly sandy soil.

The crops that I am using are dependable and make a lot of grazing per acre. Hairy vetch sown on common and Coastal Bermuda sod comes up and accumulates a lot of growth for grazing beginning in May. It provides grazing for the cows until new plantings of Starr millet take over late in June. The hairy vetch also leaves the Bermuda grass highly fertilized after being grazed off.

Isbell: Rye grass with button clover, also rye, of which there are several varieties. I use Elbon rye.

Rye grass and button clover are very palatable, will produce grazing during our coldest months. It grows well on lighter soils, will stay green as long as there is sufficient moisture, and is very resistant to insects and disease. I like Elbon rye for its early growth, also cold weather growth. It makes a heavy, dense foliage and is very palatable.

How do you prepare the land? What fertilizer is applied before planting?

Tidwell: The land is plowed with an offset plowing harrow in July or early August and is disked after each rain until planting time. Before planting, we use 600 pounds per acre of 4-12-12, or 5-10-15.

Leis: We harvest wheat early and plow as soon as possible, then work the ground with a spring-tooth harrow. We do not fertilize before planting.

Elizey: Usually, for oats-rye grass, the land will have been seeded to an annual summer grazing or silage crop as millet. This means that it will not be necessary to break the soil with a moldboard or pan plow. A good seedbed usually is developed by disking twice followed by a finishing tool called a soil surgeon. The oats, rye grass, and fertilizer are planted with a combination grain and fertilizer drill.

On those acres seeded to rye grass alone, less soil preparation is carried out. After the site is disked once and fertilizer broadcast,

RYE GRASS AND WHITE DUTCH CLOVER make the best combination for J. B. "Dutch" Isbell, Tex. It provides his Holstein herd with plenty of cool-weather grazing beginning 30 days after planting.

MORE MILK is produced on oats-rye grass than on other winter grazing crops for Ray Tidwell, Ga.

Here is our winter grazing program

it is harrowed with a spike-tooth harrow and seeded to rye grass with a roller seeder.

We also overseed rye grass on about one-half of our permanent pasture acreage, alternating this acreage each year. Continuous rye grass can adversely affect the permanent sod. The permanent pasture grass, usually Bahia grass, is clipped as close as possible with a rotary type pasture clipper after the sod has become dormant or nearly dormant. Usually, this will be some time during late October or November.

We use enough fertilizer of whatever grade we buy to apply 80 pounds each of phosphate and potash. The grade will vary from year to year, depending on the best buy we can get. It might be an 0-14-14, 3-12-12, 6-24-24, 0-20-20, or some other grade. If we use the 3-12-12 grade, 666 pounds will be required to supply 80 pounds each of phosphate and potash.

We also apply 100 pounds of nitrogen from anhydrous before planting. An additional 50 pounds of nitrogen (150 pounds of ammonium nitrate) is top-dressed shortly before Christmas and again in mid-February. The application of anhydrous ammonia is the last operation before planting; that is, we disk, apply anhydrous ammonia, finish the seedbed, and plant.

Brake: The Abruzzi rye and rye-clover mixture follows tobacco and silage corn. The land is disked down level, fertilized, and planted after the first good season. The rye-clover-rye grass mixture follows Starr millet. This land is turned with a bottom plow, disked, fertilized, leveled, and planted after first good season. Hairy vetch seeds are just thrown out on the Bermuda grass sod. They don't need a fresh seedbed.

I fertilize using as a guide the recommendations made by our state agriculture department after checking my soil samples. This is done at least every two years. Sometimes I use 200 pounds of ammonium nitrate per acre and another year it may be 400 pounds of 14-14-14 per acre. Lime is used if needed.

Isbell: We break the land down to six inches or more in July, then disk and level it. We fertilize with anything that is high in nitrogen, such as 30-15-0, at the rate of 130 to 150 pounds per acre.

How much do you plant per acre? What are the best planting dates? Is it planted alone? What fertilizer is applied at the time of planting?

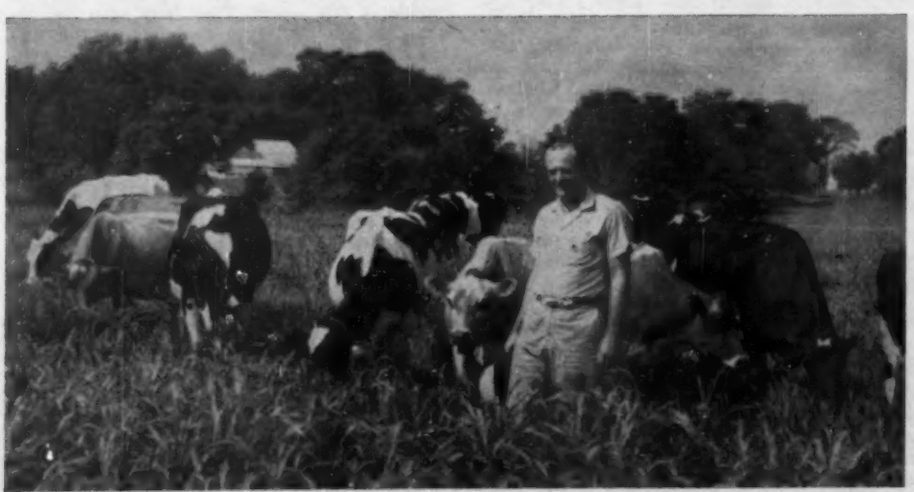
Tidwell: We plant some about August 20 to 25, some September 1 to 5, more September 10 to 15, and again September 20 to 30. We like to be finished by October 1, but we could be as late as October 30. We plant 2 to 2½ bushels rye, 4 to 4½ bushels oats, and 10 to 15 pounds rye grass is added to some pastures of rye and some pastures of oats. Fertilizer is broadcast just before planting.

Leis: We use 2 bushels per acre and for winter grazing, we like to plant by August 20. It should be planted by October 1 for winter pasture. The mixture is planted alone, and at the time of planting we use 120 to 150 pounds per acre of 23-23-0.

Ellzey: For the past 5 years, we have conducted date of planting trials using 10 different winter grazing combinations involving oats, wheat, fescue grass, rye grass, and crimson clover. These mixtures are planted every 15 days beginning September 1, and continuing through December 15. The results have been rather surpris- *(Turn to page 1164)*

WHEAT, RYE, AND VETCH make the best mixture for Charles Leis, Kans. It is fast-growing and stays green throughout winter.

ABRUZZI RYE is preferred by William Brake, N.C. It is easy to establish, is very palatable, and provides grazing into June.



MILLET IS SUMMER GRAZED on the farm of H. D. Ellzey, La., on land that was seeded to oats and rye grass for winter grazing. This picture, showing part of the herd, was taken in mid-September.

Cold weather starting aids

There are many devices available to help you in starting your car, truck, or tractor in sub-zero weather. They include an extra battery, auxiliary heat, or easily-vaporized fuel introduced into cylinders during starting.

by Melvin E. Long

DO YOU have difficulty in starting your tractor, car, or truck in cold weather? There are several products, systems, and arrangements available to help insure starting even in temperatures as low as -50 degrees. Obviously, no single engine will require all the available aids. The following discussion provides the facts to help you select the best one for your particular situation.

First, let's consider the available choices when you buy a new tractor. In general, the special arrangements are provided only on diesel tractors, since diesel engines are usually more difficult to start than are gasoline.

Some diesel tractors can be obtained with an auxiliary gasoline starting engine. The small gasoline engine is, in turn, started with the usual electric starter. This is probably the most reliable starting arrangement, especially at extremely low temperatures. The primary disadvantages are the extra cost of the gasoline engine and the inconvenience of providing both diesel fuel and gasoline for one tractor. Additionally, the two-step starting procedure must be used even in warm weather. In this situation, it takes slightly longer to get the tractor started than it does with a direct cranking arrangement.

If a diesel is to be started by direct cranking with an electric starter, additional battery capacity is necessary for reliable below-zero operation. Some tractors are equipped with two batteries to provide a 24-volt starting system.

Other starting aids on direct-starting diesels include glow plugs or manifold heaters powered by the battery, or some arrangement for introducing a very easily vaporized fuel into the engine during cranking.

HEAD-BOLT HEATER has permanently-attached electrical cord to ease the chore of attaching the longer extension cord from the power outlet.

CARBURETOR being sprayed with ether. This is helpful but it is difficult to control the amount used. Careless handling presents a fire hazard.

TANK-TYPE HEATER is basically a hot water heater hooked into cooling system of the engine.

ETHER SPRAYING is provided by this hook-up from a pressurized can to the intake manifold.

Keep engine adjusted . . .

If you have starting problems with the car, truck, or tractor that you now own, you have several choices of starting aids. Essentially, they are of three basic types: Additional cranking capacity, auxiliary heat for the engine, and use of easily vaporized fuel during starting. In general, any of these can be used on either gasoline or diesel engines. However, in all cases, the engine should be in good mechanical repair. The aids should not be used to compensate for a poorly maintained, out-of-adjustment engine.

Extra capacity . . .

At zero a battery has only 40 per cent of its normal cranking power. This reduced capacity, plus the extra drag of the cold oil, is often the cause of starting difficulties.

A second battery and a pair of jumper cables can be used to restore original capacity. The second battery should be kept well charged and in a warm room until it is taken out to be used.

You don't necessarily have to purchase a new spare battery to provide this reserve capacity. Instead, if you have one engine that is about due for a new battery, timewise, go ahead and buy the new battery for it. But instead of turning in the old battery for its slight trade-in value, keep it for the spare starting battery.

Use trickle charger . . .

Then, for $10 to $15 purchase a trickle charger to keep the battery at full charge. This charger also can be used to help keep the regular engine battery fully charged.

What about the problem of equipment with 6-volt systems and other pieces with 12-volt systems? Ideally, the booster battery should be of the same voltage as the particular system. However, you can use a 12-volt battery in either case, if you procede properly.

For a 12-volt system, the jumper cables are attached so that the battery terminals are connected positive to positive, and negative to negative. Then, operate the starter in the normal manner.

To use the 12-volt battery on a 6-volt system, first check to determine which terminal of the 6-volt battery is grounded. In most cases it will be the negative terminal, but in some installations, the positive terminal is grounded.

In either case, ground the corresponding terminal of the 12-volt battery. Then, with the ignition switch in the "on" position, connect the opposite terminal of the 12-volt battery to the terminal of the starting motor. The "boost" provided by the higher voltage will spin the engine faster, and thereby aid the starting process. Disconnect the 12-volt booster as soon as the engine starts.

If it does not start after a few seconds cranking, do not continue to "grind" the starter. The low initial temperature of the starting motor permits it to accept the increased voltage for a short time, but prolonged "grinding" will burn it out.

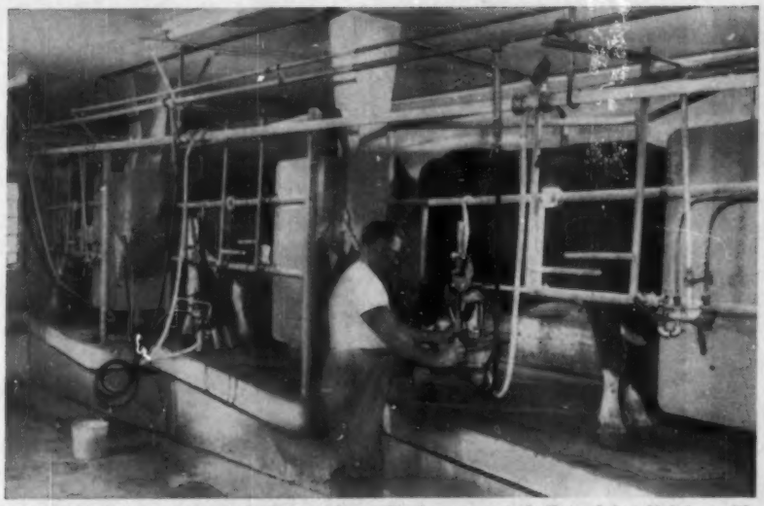
Most of the auxiliary heat devices use 110-volt AC power to supply heat to the engine, either through the crankcase oil or through the cooling system.

The lower capacity units are intended to be connected at the end of the day while the engine is still warm. They help keep the engine temperature from dropping to the surrounding-air temperature. However, the higher-capacity units can warm the engine significantly if turned on an hour or two before attempting to start the engine.

There are three general types of the low-capacity heaters, all essentially an electric immersion heating element. They are installed by the removal and replacement of the oil dipstick, freeze plug in the engine block, or one of the head bolts. In each case, a short electrical cord is permanently attached to ease the chore of attaching the longer extension cord from the power outlet.

The external-tank heater is basically a hot-water heater hooked into the cooling system of the engine. Since they have greater capacity, a thermostatic control is provided to prevent overheating.

This type of heater is available in 110-volt AC versions or in a slightly more complex arrangement which uses the regular engine fuel (gasoline, diesel, or LP gas) to operate a burner. This latter device also *(Turn to page 1180)*



MILKING PARLOR PIPELINE carries milk from cow to bulk tank in adjoining milk house. This short pipeline is kept clean easily (cleaned in-place). Cost of this type unit is about $7 per cow, not including cost of milker units or vacuum supply system.

Farmstead engineering

Let pipelines carry your quality milk

Sanitation and flavor requirements for milk are different than for any other product we handle on the farm. Here are mechanical methods which have been approved by sanitarians, inspectors, and health authorities.

by R. W. Klein

ONLY in recent years has milk come to be recognized as a material for which the handling efficiency should be considered and improved. Even now, there is only a small percentage of farms with mechanical handling between milker and cooler.

The situation with milk is different than with other materials handled in dairy operations. As the end product, milk is high in value compared to other materials. Therefore, labor efficiency in handling milk may seem less important. The fact is, that the value of the material has nothing to do with the desirability of reducing labor and cost of handling. Milk handling is complicated by the sanitation and flavor control requirements, which are not significant in other materials.

These requirements endorse the desirability of an efficient, closed, and practically cleanable handling system. They also complicate design and increase cost of such a system.

Generally, milking is done mechanically, so little has to be said about the methods and benefits of the milking system.

On many farms, little progress has been made in the handling procedures between the milker pail and the milk cooler. In large, and often poorly-organized, stanchion barns, milk moving is an arduous, time-consuming operation. Pails and cans are outmoded and inefficient transporting units.

Use bulk milk tanks . . .

Promoted and brought into being largely by dairy plants, bulk milk cooling and handling are now quite generally accepted. Many dairy farmers have converted to bulk cooling and holding tanks. This represents substantial investments. But, these tanks as such are of advantage to the farmer since they hold the milk at 38 degrees, which helps insure a grade A milk for his market outlet.

To get all of the advantages of bulk handling and real operational benefits from his investment, the system should be completed. This means the addition of a pipeline.

In moving milk from the milker to the cooler, the pipelines demonstrate greater efficiency and sanitation for their users. The in-place cleaning procedures have eliminated their major operational drawbacks.

In stanchion barns, the investment required for the pipeline is large and may be difficult to justify for smaller operations, or where labor is plentiful and inflexible.

A practical compromise from the cost standpoint is the use of a dumping station and portable plastic pipeline.

The dumping station is moved as milking progresses down through the stanchion barn. Like "permanent" pipelines, this system requires no auxiliary pump, if used with a vacuum tank. Otherwise, a sanitary pump is needed to move the milk through the line. Another variation of this system is the use of a releaser in the milk house, rather than a pump on the dumping station. This would be connected to the vacuum system, and uses vacuum to move the milk to the bulk tank. This system will use more vacuum to operate the releaser, so the vacuum pump should be checked for reserve capacity, before installation of this type of system.

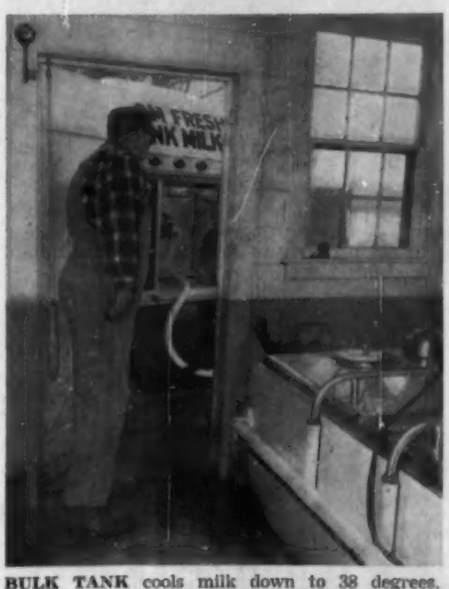
Still another type of system is the dumping station used with 1-inch glass, rather than the plastic hose. This can be adapted to vacuum tanks, or use of milk pumps on dumping stations for open style tanks. The initial cost of this system may be as much as double the cost of a system using plastic. However, it is of a more permanent nature, and there should be less replacement than in the plastic system.

Reports vary as to the length of time the plastic line may be used before being discarded for sanitary reasons. A rule of thumb might be that you could expect the same life as the milker hoses on your buckets.

Cost of pipeline systems . . .

Costs of various types of pipeline systems vary with size, barn arrangement, milk room location, type of bulk tank, *(Turn to page 1169)*

STANCHION BARN PIPELINE carries milk from cow to bulk tank. These in-place pipelines cost approximately $10 per cow and this cost does not include milker units or a vacuum supply system.



BULK TANK cools milk down to 38 degrees, whereas well water tanks cooled to 52 degrees. The bulk hauler attaches hose, pulls switch, and moves a ton of milk without using a back muscle. Result: Cold, quality milk from cow to consumer.

The author is head of the agricultural engineering department, University of Massachusetts.

NOTE: For more specific information on flexible plastic pipelines, read the feature in Hoard's Dairyman, November 25 issue, page 1097, "Flexible plastic milk pipelines will work," by Myron P. Dean, professor of dairy and food industry, University of Wisconsin.

—THE EDITORS

TRAILER ARCH with hydraulic lifting device will fit most standard farm tractors. The author is shown checking the cable attachment.

LOADER-SKIDDER in combination with truck lifts one end of log for skidding to the sawmill. Power take-off winds up cable on winch.

How to mechanize the farm woodlot

Money lies idle in our woodlots. With the new machines being developed, there is hope for the singlehanded farmer to get some return on this land.

by E. W. Foss

DELIMBING MACHINE in action. Saw behind delimbing head cuts tree trunk to desired length.

PORTABLE WOODCHIPPER produces a product that can be handled faster and cheaper than pulp.

FENCE POST SHARPENER looks like giant pencil sharpener and operates on the same principle.

YOUR farm woodlot along with the woodlots of 4.3 million other farmers and small private owners makes up almost exactly 60 per cent of our nation's commercial forest land. What is perhaps even more significant is that these small lots (average size 47 acres) are on better than average forest soil and topography, yet due to past poor forest practices have a very low yield.

A tremendous opportunity exists in the management of these lots, harvesting the woodlot products, and processing these raw items into the many needed finished and submanufactured consumer goods.

Today, fewer farmers work in the woods during odd times (winter particularly) than formerly. Many small woodlots are owned by non-residents. Locals mills have, to a considerable degree, disappeared; and woods work "know-how" is almost a lost art. Besides, the woods (for the most part) are quite badly cut-over and tax rates, when applied to the letter of the law, make the growing of a timber crop almost prohibitive. It's not a pretty picture is it?

On the other hand, there is an increasing interest in "Tree Farms" and many urban residents have purchased worn out farm land for the purpose of reforestation including the growing of Christmas trees.

There is also a growing recognition of the multi-purpose values of forest land, including:

1. The growth of wood products.
2. A habitat for game and fish.
3. A conservator of water.
4. A location for recreation (walking, riding, climbing, and relaxing).
5. An investment.
6. A personal belonging (something **solid** in this fast moving world).

As a result of this interest, more thought is being given to better ways of taxing forests — particularly applying the property tax to forest **land** only and fixing a yield tax (New Hampshire=10 per cent) to stumpage value when the crop is harvested.

Another bright spot in this picture is that woods work by farmers pays better than average farm wages. Cornell University cost accounts show consistent labor returns over $1 per hour where other farm enterprises are frequently less than $1 per hour.

What is needed?

Many professional foresters feel that in this day of specialization the answer to harvesting small woodlots lies in the hands and equipment of the local custom operator. They feel that generally the commercial dairyman or other farmer does **not** have the time, equipment, or desire to perform woods work.

For such a custom operator to keep busy, he must have contracts with woodland owners for a steady supply and an outlet for an extremely varied lot of wood products, one or more local woods processing plants and concentration yards.

In other words, if you want your woodlot to return to you what it is capable of doing, you must get together with (organize) owners of other small lots to provide a source of supply for an operator; then do more cooperating to bring in:

1. Furniture parts submanufacturing plant.
2. Post and pole treating set-up.
3. Pallet plant.
4. Paneling mill.
5. Charcoal retort.
6. Novelty shop.
7. Lawn furniture shop.

Fireplace wood, maple products, wood chips for cattle, garden, and shrubs, and decorative greens are other required products in every community. *(Turn to page 1174)*

The author is a professor of agricultural engineering, Cornell University.

Is your chimney safe?

It will deteriorate through the years because of chemical action of flue gases. Good repair is essential.

by D. W. Bates

A WELL-CONSTRUCTED and properly-maintained chimney may mean the difference between having a house and not having one. The householder who allows a chimney to get into a bad state of repair is literally "playing with fire." This applies to the new chimney which is improperly built, as well. Frequently, the cause of a fire is assessed to a chimney which became overheated.

The satisfactory performance of a chimney flue is determined by its size, direction, shape, height, tightness, and smoothness.

A chimney "draws" because of the difference in weight between the hot gases in the flue and the cooler outside air, and because of its height. The greater the difference in temperature, the greater the draft. This accounts for the fact that draft is not as good in summer as in winter.

A chimney may be high enough but have a flue too small to expel the volume of smoke admitted to it. The chimney may be large enough but lack sufficient height to produce a strong draft.

Chimneys should extend at least two feet above the ridge of peak roofs and three feet above flat roofs. In some cases down drafts may be caused by nearby trees, buildings, or the roof itself. Often a hood with the opening parallel to the ridge is effective in eliminating these problems.

Metal pipe extensions, sometimes used to increase the height of a flue, generally are not too satisfactory because they rust quickly as the result of flue gases condensing in them. Where added height is needed, increase the height of the masonry work.

Have good foundation . . .

The chimney should rest on a good foundation at least 6 inches wider than the chimney. A thickness of 8 inches is recommended for one-story houses and 12 inches for two-story houses. The foundation of an exterior chimney should extend below the frost line or to the same level as the bottom of the foundation of the building.

Do not support a chimney on a wooden floor, wooden beam, or from brackets attached to the walls. Such a chimney is a fire hazard. Wood framing shrinks and beams supporting heavy loads deflect in time. This movement may be sufficient to crack the chimney and make it unsafe.

Each chimney flue should have a suitable liner. The liner makes the flue tight and prevents the hot flue gases from coming in direct contact with the mortar joints.

Walls of lined, interior chimneys not more than 30 feet high should be 4 inches thick if of brick, 8 inches thick if of hollow building units, and 12 inches if of stone. For outside construction, minimum wall thickness should be 8 inches. This thickness also is desirable for the exposed portion of an inside chimney.

In chimneys containing 3 or more flues, separate each group of 2 flues from the other single flue or group of 2 flues by brick divisions not less than 3¾ inches wide. The joints of linings of adjacent flues not having divisions should be staggered.

A suitable mortar for use in chimney construction can be made from 1 part Portland cement, 1 part hydrated lime, and 6 parts clean sand.

Never allow wood to be in contact with a chimney. A space of 2 inches should be left between the outside space of chimney and all wooden beams or joists. An exception is when 8 inches of masonry is used outside the flue lining. Then the wood framing may be within ½ inch of the chimney masonry.

The space between the floor framing and the chimney should be filled with a porous, non-metallic, incombustible material. Screened cinders or a variety of mineral insulating materials are satisfactory. Do not use brickwork, concrete, or mortar. Subflooring may be laid within ½ inch of the masonry. Baseboards which must be fastened to plaster that is directly in contact with the wall of a chimney should have a layer of asbestos at least ⅛ inch thick placed between the woodwork and the plaster.

Make sure that the smoke pipe fits tightly in the chimney and that it does not project into the flue. The hole through the chimney wall to flue should be lined with fire clay, or with a metal thimble built into masonry.

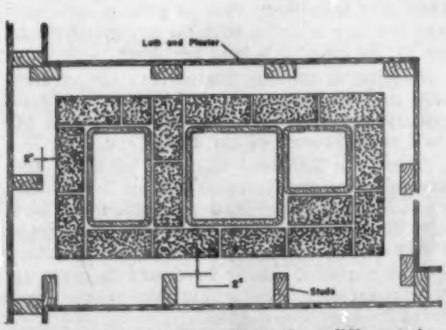
Insert ventilation shield . . .

Should it be necessary to carry a pipe through a wood partition, insert a metal double-wall ventilation shield at least 12 inches larger than the pipe in the wall. Never allow a smoke pipe to pass through a floor, closet, or a concealed space.

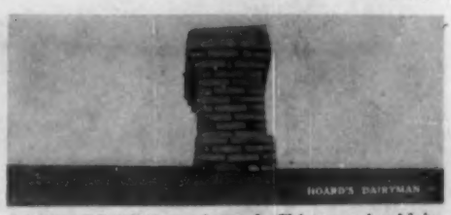
Provide a 2-inch clearance between the wood framing and the masonry where the chimney passes through the roof. Close this opening with metal flashing.

Proper maintenance of a chimney is essential. Exposure to the weather and to hot flue gases cause the mortar to weaken and crack over a period of time, with the result that the exposed part of the chimney may be reduced to little more than a pile of bricks. If originally well built, such a chimney can be repaired satisfactorily by taking it down to where the masonry is solid and relaying it.

A careful inspection of the chimney each year and the making of small repairs as they are needed can eliminate the need for a major overhaul. *(Turn to page 1175)*



PROPER ARRANGEMENT for three different size flues. Note distance between studs and brickwork.

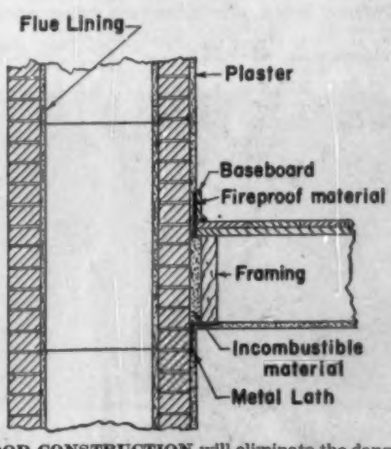


LOOSE BRICKS are hazard. Chimney should be taken down to where masonry is solid and relaid.

METAL EXTENSION on exposed chimney did not increase draft; caused greater creosote problem.

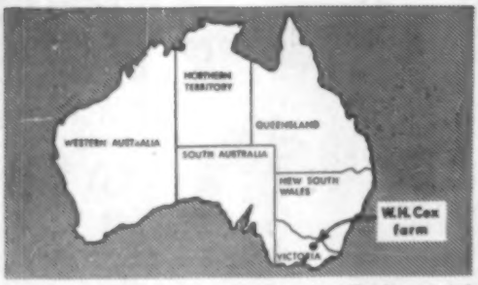
EXTERIOR CHIMNEY often is extremely difficult to support. Note cracking near roof support.

DOWN DRAFT effect caused by higher roof was eliminated by extending chimney height; providing hood with openings parallel to higher roof.



GOOD CONSTRUCTION will eliminate the danger of woodwork becoming overheated by the chimney.

The author is an extension agricultural engineer at the University of Minnesota.



DAIRY AREA in Australia is primarily in coastal region of southeast Queensland, New South Wales, and Victoria. W. H. Cox farm is near Kyabram, Victoria.

JERSEY HERD is checked by W. H. Cox and son, Brian. Milking parlor is in background.

How they dairy farm "down under"

This Australian dairyman and his son milk 106 Jerseys, averaging 6,400 pounds milk, 322 pounds fat. They feed no grain, only pasture and hay.

by Gethin Fenton

IT WAS my good fortune last summer to visit farms in many countries of the world. While in the United States, I profited from seeing your "dairyland" with the help of Hoard's Dairyman, to which I subscribe.

After several days of travel and evenings of visiting, the editors suggested I report for American readers a description of an Australian dairy farm. With the hope that others may benefit as I did from an exchange of experiences, I offer here a report on a young Australian dairyman.

(It would be misleading to say he is typical because you expect me to put our best Australian foot forward. I find this is accepted practice in all countries of the world.)

W. H. Cox of "Morella," Kyabram, Victoria, Australia, has one of the most modern milking parlors in this country. Not only is his setup an object lesson in cleanliness and efficiency but his farming methods could be the pattern on which all young, progressive farmers could model their future.

The farm, taken over by Cox in 1948, is situated in Southeastern Australia in the Goulbourn Valley, the center of a great flood irrigation area. The soil is light loam, of better than average fertility, flat with a slight fall to the drainage channels. Good drainage, in Cox's opinion, is the basis for successful establishment and growth of pasture. Of the 156 acres in the farm, 130 are in permanent pastures of white clover, perennial rye grass, New Zealand cocksfoot (orchard grass) and paspalum dilatatum (Dallis grass). The growth of paspalum is encouraged, since Cox believes that with it he can obtain his most productive pasture.

Twenty acres are sown in subterranean clover and rye grass and the remaining six acres are taken up with the home, farm buildings, garden, and orchard.

Pastures are top-dressed in March or early April (fall in Australia) with 22 per cent superphosphate at the rate of 360 pounds per acre. Paddocks (meadows) are harrowed in June and July with 5 rows of prong-type harrows with chain mesh. July is our midwinter (similar to winter in southern California). The ground is cross harrowed until, in our words, it is black.

The irrigation program depends on the rainfall. Average rainfall is about 20 inches, falling mainly between March and August. Usually, watering starts in September and continues through to early March.

Feeding is tied up with irrigation. Half the farm is irrigated one week and the other half the following week. The area of each paddock is approximately 7 acres and they ar irrigated with a 4-inch watering 5 days before the cows are put in to graze.

The cost of irrigating is $1.70 per acre foot of water. Each seven acres is grazed for two days and one night. With our rotational grazing system the cows keep moving to fresh pasture. They are followed by heifers and young stock and the pasture is topped (clipped) as they move on.

Strip grazing is practiced only in the spring months (October to December) as a means of bloat control.

Hay yields 2½ tons per acre . . .

Paddocks are closed up from September 1 and cut for hay in mid-November. Tonnage of pressed hay is 2½ tons per acre. Last spring 7,000 bales of hay were conserved (200 tons). Of this, 5,000 bales will be fed to dairy cows and young stock.

Pasture is cut in the early flower stage and allowed to wilt to the required moisture content. A side-delivery rake is used to windrow and the hay is baled with an automatic twine tie at the rate of 9 tons per hour.

Feeding of the hay begins May 1. Cox does not conserve silage as he finds that high-quality hay combined with grazing meets all feed requirements of his dairy herd.

There are 200 head of stock; of these, 106 are milking cows and the balance are heifers of various ages for herd replacements. There are 40 heifers reared each year and from these, 25 are chosen for herd replacements.

This purebred Jersey herd will be built up to 150 milking cows within two years. Cows calve in July and August.

Of chief interest to visitors is the herringbone milking parlor. When Mr. Cox's son, Brian, came home from school to work on the farm, they decided to modernize.

After studying the matter for six months, they decided the herringbone system as used by Massey College in New Zealand was as near their requirements as could be constructed. The chief advantages being stoopless milkings, less walking, speed of milking, opportunity to give proper attention to udder stimulation and milk letdown, and contented cows.

This milking parlor holds 20 cows, 10 on each side. It allows 3 feet per cow and 4 feet at each end of the building. The double bail (stall) in which newly-calved cows are milked or, if necessary, cows requiring attention can be handled, is 7 feet wide. There is a 6-foot-wide passage between bail and milk room (14 by 14 feet). A cold wall refrigerated bulk unit (500 American gallons capacity) is housed in the milk room. Over-all dimensions of the building are 65 by 15 feet.

The building is constructed of brick with a tiled roof. The inside walls and ceiling are painted a pale blue. The floors are concrete; a light-colored, washed sand was used for topping the concrete giving it a white finish.

The holding area contains over 600 yards of concrete. From the main yard (72 by 18 feet) cows are drafted into a grouping yard and then into 2 yards which hold 10 cows each. From there the cows are brought into the milking parlor.

Mr. Cox and Brian do the milking. It takes 1½ minutes from the change-over of machines to get the next 10 cows into the bails. There is no holdup as the yards help to achieve a smooth flow to the milking parlor. An Australian-made milking machine of 10 units is used.

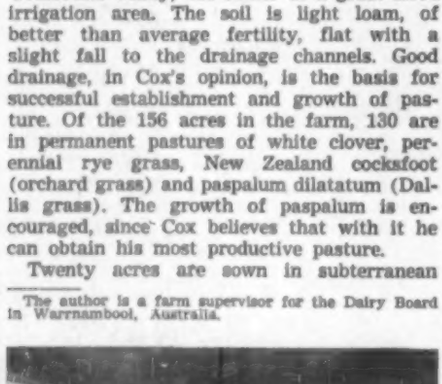
The fore milk is drawn from each teat and cows are machine stripped. The 100-gallon (American gallons) electric hot water service is housed above the ceiling and water is piped to the milking pit, a wash basin for the hands, and to the milk room.

It takes 1 hour to milk 100 cows in the afternoon and 1¼ hours in the morning. At the time of our visit, the average yield per cow was 30 pounds per day.

Washing down the milking parlors, using a pressure pump, takes 3½ minutes and to wash down the receiving and holding yards takes 15 minutes. For this cleaning, 1,000 gallons of water are used daily. All the washing water is run into a concrete pit and then pumped directly into a drainage channel.

There is no doubt that the basis of the success of this farm lies in the cooperation within the family and contentment with their chosen way of life. **THE END**

The author is a farm supervisor for the Dairy Board in Warrnambool, Australia.



INSIDE VIEW of herringbone milking parlor with 10 bails or stalls on each side. It allows 3 feet per cow and 4 feet at each end of building. One side is open to concrete holding area.

Brown Swiss breeders elect Hull to succeed Evans

Annual report shows continued drop in registrations; Idtse reviews breed progress over past 23 years; officers ask for "unity and harmony."

BROWN SWISS breeders and friends sat through one of the shortest business sessions in the history of the breed at the annual meeting of the Brown Swiss Cattle Breeders' Association held at Beloit, Wis., November 9.

No specific charges against leadership or management were brought into the open discussion, but it was obvious to those in attendance that all was not as smooth as it has been at most previous annual meetings. While only the officers and directors (including those retiring and the two newly-elected ones) addressed the membership, a plea for "unity" and "harmony" predominated their short presentations.

The detailed comparison of association activity in the table below shows rather substantial drops in registrations, transfers, and operating expenses. These declines obviously concerned some of the breeders and directors. There was, however, an increase in classification over the previous year.

Fred Idtse, secretary of the association since 1938, gave a report covering the progress of the breed over the past 23 years. He stressed the spirit of friendship and fellowship that has existed among the state associations as something "we could well recapture." He referred to the Canton Show program which was started in 1938, a time when people came out to see what a Brown Swiss cow looked like.

One of the greatest needs at that time was to get more cattle on test, and that need was accomplished. The number on test reached a peak in 1955, with 405 on R.O.P. and 9,702 on HIR. Another phase of association activity is the classification program, which started in 1943, with Brown Swiss the first breed to use a breakdown in type ratings.

Idtse stated that he took over an office from the late Ira Inman that was debt-free along with $36,366 in an investment fund and $17,943 in a checking account. Asserting that he had resisted many schemes and pressures over the years to spend money, today the association has $222,000 in the investment fund and more than $36,000 in the checking account. In answer to some recent critics, he stated that field service was expanded as fast as sound judgment would dictate, although he believes now might be the time to spend extra money for breed extension.

Idtse challenged the breeders to be more aggressive in their sales promotion and merchandising of the breed. He asked for more grade Brown Swiss herds to supply the commercial needs. Referring to a presentation by Dr. E. E. Heizer at the luncheon discussing tests for solids-not-fat and protein in milk, Idtse said, "The day when milk will be paid for on the basis of all its constituents may be closer than we think."

The secretary concluded with the statement, "With the decrease in demand for bulls, the use of the lower end of our bull calves for meat is becoming more and more important as a source of income."

The entire slate presented by the nominating committee was unanimously elected. Vernon Hull, veteran manager of Lee's Hill Farm, New Vernon, N. J., who grew up with Brown Swiss cattle in Ohio, was named president. He succeeds Willard Evans, Waukesha, Wis., who has served five terms. Raymond Rayne, Seattle, Wash., was re-elected vice-president as was Albert Specht, Gibsonburg, Ohio, a director.

Steva, Wagler new directors . .

George Opperman, Manning, Iowa; and George Beutel, Joliet, Ill., were ineligible for re-election as directors. Their successors are Gerald Steva, Luana, Iowa; and Willis Wagler, Pekin, Ill.

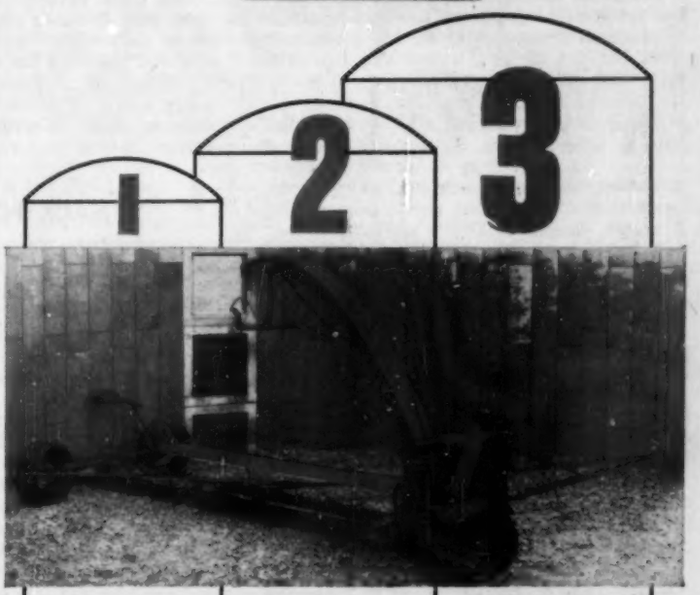
The Ira Inman Trophy awarded to the Premier Breeder at the National Brown Swiss Show went to Welcome In Farms, Inc., Dublin, Ohio, owned by Dr. John L. and John W. McKitrick. The R.O.P. production trophy, presented to the owner of the cow on R.O.P. completing the highest record during the year, went to Grantstead Farm, Wilmington, Ohio, on the record of Kay-Als Trudy. Her record at 7 years, 5 months, 365 days, 2x, was 27,534 pounds milk, 1,262 fat.

The Herd Test Trophy was won by Suydam Farms, New Brunswick, N. J., with a score of 888 points. In second was Roland Krauss and Frank Gregory, Sebewaing, Mich., followed by the John Ingold Estate, Monroe Wis.; and Voegeli Farms, Inc., Monticello, Wis.

Association activity . . .

	1959-60	1960-61	(+ or —)
Registrations			
Female	21,245	16,596	—
Male	2,704	2,285	—
Total registrations	23,949	18,881	—
Female transfers	12,117	10,939	—
Male transfers	1,740	1,660	—
Total transfers	13,857	12,599	—
New members	100	65	—
Total active members	1,842	1,885	+
Breeders testing on HIR and DHIR	264	242	—
Cows on HIR	7,744	7,220	—
Herds classified	118	274	+
Animals classified	1,717	3,510	+
Income	$202,288.05	$188,286.08	—
Expenses	205,105.92	203,243.80	—
Net profit	–$2,817.87	–$14,957.72	—
Net worth	$317,511.33	$312,378.21	—

"1" PATZ SILO UNLOADER For



OR MORE SILOS

YES! YOU CAN MOVE YOUR NEW PATZ SILO UNLOADER QUICKLY FROM SILO TO SILO. SIMPLE TELESCOPING ARMS PERMIT USE IN SILOS RANGING FROM 12 to 16 FT., 16 to 20 FT., 20 to 24 FT.— *AND NOW* — 24 to 30 FT. IN DIAMETER.

AND MORE PATZ FEATURES TO *MAKE YOUR WORK EASIER*: THE PATZ SILO UNLOADER IS COMPLETELY SELF-PROPELLED, DELIVERS TONS OF SILAGE AT THE FLIP OF THE SWITCH, CONTROLS DEPTH OF CUT AUTOMATICALLY. THAT'S WHY PATZ NO LONGER USES A TROUBLESOME TRIPOD, WINCH AND CABLE.

POSITIVE MANUAL CLUTCH* KEEPS YOUR PATZ SILO UNLOADER FROM FREEZING IN — ASSURES QUICK, NO LOAD STARTUPS REGARDLESS OF THE WEATHER CONDITION.

LOOK AT IT ANY WAY YOU PLEASE — THE NEW PATZ SILO UNLOADER IS BUILT TO MAKE YOUR WORK EASIER — TO ELIMINATE ONE OF THE MEANEST OF ALL FARM CHORES.

*patent pending

THE PATZ COMPANY • POUND, WISCONSIN

Please send me complete information on the PATZ SILO UNLOADER

NAME _____

ADDRESS _____

CITY _____ STATE _____

THE PATZ COMPANY

manufacturer of barn cleaners, silo unloaders, bunk feeders, manure spreaders, silage carts, and blower pipe clamps

POUND, WISCONSIN

EDITORIAL COMMENT

W. D. HOARD FOUNDER

TAKE MILK OFF "HOT" LIST

THE public is understandably concerned about radioactive fallout. Unfortunately, milk has been singled out as a commodity to test. This has brought unfavorable publicity. Some milk dealers report route salesmen are getting cancellations "because milk is too contaminated."

The truth is that milk is probably one of the safest of foods because the cow "screens" as much as seven-eighths of the strontium 90 from her diet of plant crops. Confirming the safety of milk, Dr. Francis Weber, chief of the division of radiological health of the U.S. Public Health Service, said on Norman Kraeft's Mutual Broadcasting System's program recently, ". . . . milk is by no means the highest in radioactivity of the various dietary constituents that the American public consumes . . . it is not dangerous."

This being so, why is milk singled out for testing and publicity? There are several reasons. It represents food in the most easily available form. It is easy to examine. It is universally used. It is an important element in the diet. And, it is produced and consumed throughout the entire year.

Nothing on earth, save the virtue of woman, is more susceptible to scandal than butterfat.

Though there are sound reasons for testing milk, we agree heartily with the recent resolution adopted by the National Milk Producers Federation. It reads, in part, as follows:

"Until such time as it becomes necessary to put into effect control measures in terms of specific commodities, public press releases which are merely informational and educational in nature should be stated in terms of air and water, or in terms of an index number, without reference to any specific commodity.

"The issuing of press releases by public officials in terms of specific commodities when there is no emergency and when control measures are not required causes serious and unnecessary harm to industry."

SUE THE TEAMSTERS?

FOR two weeks in late October and early November, the teamsters union in the New York City area was on strike. The issue revolved around the installation of time clocks!

While the teamsters took a two-week vacation, the dairy farmers on the New York market — some 47,000 of them — had to divert their milk to manufacturing purposes. The result has been a loss of $1.3 million. Another effect of the strike and its settlement is expected to be an immediate increase of 1 cent per quart in the retail price of milk and, in all probability, a further increase of another cent a quart to make the package cost total 2 cents per quart in the New York area. No estimate can yet be made of the effects on future fluid milk sales.

But let's get back to the effect on dairymen. Obviously, great damage has been inflicted upon innocent people. An angry New York dairyman, at the National Milk Producers Federation meeting in Seattle last month, said that the dairy cooperatives in the market should sue the teamsters union for damages. We can sympathize with his feeling. Simple justice and equity would indicate that damages are due. He knew, and we know, of course, that there is little or no hope of success in recovering damages because pro-labor legislation undoubtedly makes the teamsters immune to such action though great damage has been done.

One good purpose would be served by a court suit. It would publicize dramatically the losses suffered by innocent parties. Further, it would point up the necessity for corrective legislation to resolve labor-management disputes which, if allowed to go to the strike weapon, stand to seriously impair the rights and welfare of innocent parties.

A SACK FOR SACKETT

NO ONE should drink milk beyond one year of age, according to Dr. Walter W. Sackett, Jr. of Miami. In an interview with the Louisville Courier Journal recently, the man who holds the post of chairman of the public policy commission of the American Academy of General Practice prescribes coffee for infants from five months on. Most of our readers have read the Associated Press release which originated in Louisville and which has now been published in almost every section of the United States. Certainly we have been flooded with newspaper clippings.

In addition to revealing his propensity for headline-hunting, Sackett also revealed his woeful ignorance of nutrition and heart research. How such a man could be named to the chairmanship of the commission he heads is beyond belief. Obviously someone made a horrible selection.

To support our contention, the American Medical Association promptly repudiated Sackett's statement as "the extreme views of one man, not supported by scientific evidence." Dr. John Youmans, director of scientific activities for A.M.A. and former dean of the Vanderbilt University Medical School, said, "This does not represent sound thinking."

Fortunately, Sackett's silly statement backfired because from many quarters came a vigorous defense of milk, including an editorial page feature in the Chicago Daily News, which read, "We note your conclusion that milk is strictly for babies. One of your colleagues will soon announce that sensation is for the birds."

Our conclusion: Sackett qualifies as a writer for the equally unreliable Police Gazette.

76 years ago...

A well-equipped dairy farmer must be the best kind of an all-around farmer, for he has to do with all the problems of the soil and crops and especially and specifically with those problems that relate to dairy cattle. So, at a glance it can be seen that the true dairy farmer must be the broadest kind of a farmer and the true dairy paper the broadest kind of a farm paper.

W. D. Hoard

ANNUAL BASES MAY BE DUE

BLEND pricing of milk in federal milk marketing orders may be on the way out if the National Milk Producers Federation can obtain a change in the Agricultural Marketing Agreement Act of 1937. This will be the effect of a "market supply management resolution" adopted by the federation in Seattle last month. It reads:

"For the past several years dairy farmers have suffered a substantial reduction in net income because of the lowered prices brought about by excess production. All indications are that this trend will ultimately lead to even more serious price dislocations.

"Other segments of the economy have solved their price problems through reduction of marketings or hours of work.

"Dairy farmers should have the same right to adjust milk supplies in individual federal order markets to effective demand provided such programs are approved through referendum by the dairy farmers regularly supplying those specific markets.

"In order to effectuate such a program the federation proposes and will vigorously support necessary enabling legislation."

It is impossible to predict the specific provisions of such amendments to federal milk orders. Undoubtedly, they will vary from region to region if authorized by Congress. It is reasonable to expect, however, that dairymen will endeavor to arrange their marketings so they can provide milk only for the fluid milk needs of the market and not for the lower-price manufacturing usage. This could mean annual negotiable bases, a higher Class I utilization, and materially improved prices.

Obviously, the federation's decision was made with courage and yet reluctance. Heavy fluid milk surpluses, however, make price improvement almost impossible without bringing the supply of fluid milk into balance with its demand.

We hope dairy cooperatives do not rush headlong into this type of program. We would like to see two or three markets, strategically located, pioneer and gain experience with annual bases. Following that experience other markets can assess more accurately the problems and rewards which may be expected.

DOES POULTRY SET A PATTERN?

WE WERE told recently that only 5 per cent of the broiler producers and 15 per cent of the turkey producers are independent. The rest are under the direct or indirect control of integrators in one form or another. Though we are not in position to verify these figures, they do indicate the direction that our sister industry has taken.

A short eight years ago, we were severely criticized by a good friend and a powerful farm organization leader for advocating a self-help dairy program. Through it we hoped to preserve dairy farmer control of dairy farming. We were told, however, that we should abandon our efforts to bring supply and demand into balance through self-help. Instead, we should follow the shining example of the poultry industry. Efficiency of production and the magic word "integration" were the keys to industry prosperity.

It is no longer necessary to argue theories. The record is dramatic, clear . . . and sickening. Prices are, and have been, ruinously low with no apparent prospect of material, lasting improvement. The independence of the poultry producer is but a nostalgic memory.

Questions from Our Readers

Ceramic tile finish

What could we use for the walls of our milking parlor that would allow for easy cleaning?
Michigan C.L.W.

There is a concrete block product with a ceramic tile finish on the inside which is being used quite extensively in milking parlors in Michigan. This block provides a glazed ceramic tile finish on the inside of the building very similar to that which you would get with glazed tile.

This finish, which is about one-half-inch thick, is actually baked onto the face of the concrete block so that it is a permanent part of the block itself. No doubt one of the concrete block dealers in your area could give you some information on the product and possibly obtain it for you.

Of course, the cost is higher than for standard concrete blocks, about three times the cost per block. However, it does provide an excellent and durable finish for milking parlors and is easy to clean.

—MERLE L. ESMAY
Michigan State University

Concrete granary?

Some one has suggested we put up a poured concrete granary and waterproof it. What is your opinion?
Minnesota N.T.

Generally, farm grain bins are not made with walls of concrete. Wood or metal bins are preferred.

It is essential, however, that the concrete floor of a grain storage be constructed so that it will prevent moisture in the soil from moving through the concrete and into the grain, causing spoilage.

—D. W. BATES
University of Minnesota

Re-lay tile drain

How can I make sure the drain from my milk room won't freeze during cold weather? It is a straight 4-inch tile line, at an average depth of 20 inches, and exposed to the north wind. The shady side of the barn gives the most trouble.
Iowa S.T.

All sewer lines, waste water disposal lines, and water pipes should be installed below the anticipated frost depth to be sure of continuous operation throughout the winter. A minimum depth of 3½ feet is recommended for your area for general application. However, in a shaded location such as the north side of a barn which receives no heat from the winter sun, an additional foot of depth is recommended.

Therefore, I would suggest that you re-lay the drain line to a depth of 4½ to 5 feet.

—TED L. WILLRICH
Iowa State University

Paint silos black?

Will painting the outside of a concrete silo a dull color, black or gray, that absorbs the heat of the sun help to reduce the amount of frozen silage in the silo?
Wisconsin E.H.

I know of only one specific case where a man has painted the outside of a concrete silo black with the idea that it would absorb more heat from the sun and, thus, reduce freezing of the silage. He is very well pleased with the results and has much less difficulty with frozen silage in this silo than in one of similar construction next to it which is natural color.

—D. W. BATES

Measuring ground ear corn

How do you measure ground ear corn? To find bushels of shelled corn, we multiply length by width by depth and multiply by .8.
Iowa H.D.M.

If you have a bin that measures 10 feet wide, 10 feet long, and 10 feet high, you can calculate the amount of shelled corn or ear corn or ground ear corn it will hold as follows:

1. Shelled corn capacity=10 x 10 x 10 x 0.8=800 bushels.
2. Ear corn capacity=10 x 10 x 10 x 0.4=400 bushels.
3. Ground ear corn capacity= 10 x 10 x 10 x 0.515=515 bushels.

These figures are all estimates. Accurate numbers of bushels can be determined only by weighing.

—LARRY D. VAN FOSSEN
Iowa State University

Non-toxic paint

We have built a new fence around our barnyard. What kind of paint can we use that will not harm our cattle?
Michigan M.B.

Most paint manufacturers now make a paint specifically intended for use in barnyards and other places where animals are apt to get at it.

Since the specific pigment which usually is used in white paint is white lead and this will cause sickness in animals if they eat it, the special paints intended for use around animals will have other white pigments, such as zinc oxide or titanium dioxide. They also may contain magnesium silicate or other non-toxic solid material.

I think your best solution would be to buy your paint from a reputable local dealer and get a type which is intended specifically for use in barnyards. If you can't find such a paint, you probably would be reasonably safe in buying a paint which does not contain lead compounds, zinc yellow, mercuric, or copper compounds, arsenates, or stannates. Nearly all the white colors, other than lead, are safe. The blacks, the earth colors, ochres, umbers, siennas, and grays, as well as iron oxide, should be relatively safe.

If the paint you intend to use is colored, try to get one which has been tinted with one of these materials which are safe.

—G. P. BARRINGTON
University of Wisconsin

Why shut fuel valves?

On my LP gas tractor, why should I shut off both fuel valves and let the engine run until it dies, rather than just turning off the ignition?
Arkansas C.T.W.

In normal operation after the engine warms up, you will have the liquid line valve open and the vapor line valve closed. If you use the liquid out of the line, by using the recommended stopping procedure, the line is clear for the passage of gas when you start the engine again. If you do not empty the line, it will be filled with liquid, but there will be no heat to vaporize this liquid at the converter when you try to start the cold tractor. This may cause difficulty in starting.

—MELVIN E. LONG

Repair old silo unloader?

Which of the older type models of silo unloaders could be fixed up so that it would work in my silo on frozen silage? I have been thinking of buying an older model and fixing it up in my farm shop, to save myself a little money. Would this pay?
Minnesota B.B.

Before attempting to repair an old silo unloader for use in your silo, first check with your power supplier to make sure your electric service is adequate to serve the silo unloader motor. Unless your electric system has sufficient capacity, difficulty is almost sure to arise with the unloader.

An older model unloader of the auger type would be the most desirable for you to work with. Make sure the auger is not unduly worn. More than likely the knives will be worn and will need replacing. It may be necessary to add some additional knives to the auger. The motor operating the silo unloader should be of the repulsion start-induction run type. You may not find this on a used machine.

When attempting to unload frozen silage, it is important to do so at a somewhat slower rate than when working with unfrozen silage. It is also important that the silo walls be inspected periodically, as a thin layer of frozen material is usually left against the walls. This material should be removed.

The silo room door should be kept closed tightly when not actually in use to prevent moisture from the stable entering the silo where it will condense in cold weather and make the operation of the machine more difficult.

—D. W. BATES

Why two hoses with LP gas?

Why must I use two hoses for filling my LP gas tank on the tractor? Why not just vent the tractor tank into the air and save using the second hose?
Ohio J.T.A.

The LP gas vapor released by venting is highly explosive. All safety codes require the use of the second hose to return vapor to storage tank rather than releasing it into the air. —MELVIN E. LONG

Hydraulic pump necessary?

I am buying a manure loader for a tractor that has a hydraulic system. Is it necessary to buy another hydraulic pump?
Illinois B.A.G.

If the hydraulic system of your tractor can develop the required pressure and flow rate required for satisfactory loader capacity and speed of operation, there would be no need for a separate pump.

In some cases, you can use the control valves that are already on the tractor. If this is so, the loader cylinders are simply hooked to the connections normally provided for remote cylinder operation.

However, on many older model tractors, the hydraulic system capacity is inadequate for satisfactory loader operation; then it would be necessary to have a separate pump and control valves.

—MELVIN E. LONG

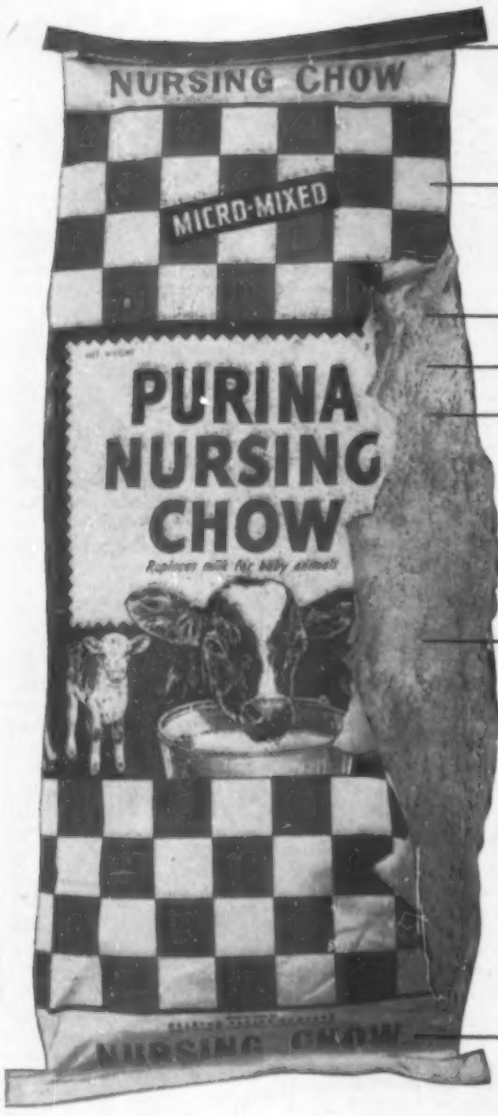
Cracks in tire sidewalls

What can be causing the diagonal cracks in the sidewalls of my tractor tires? They are completely around the tire.
Michigan T.C.W.

This condition usually results from buckling of the sidewalls, which in turn is caused by underinflation of the tires. It also can be the result of overloading the tires during a heavy pull, such as when weight is transferred to the rear wheels by hitch action on a heavy draft load.

—MELVIN E. LONG

"It seems like we owe you folks an apology . . ."



MINERALS

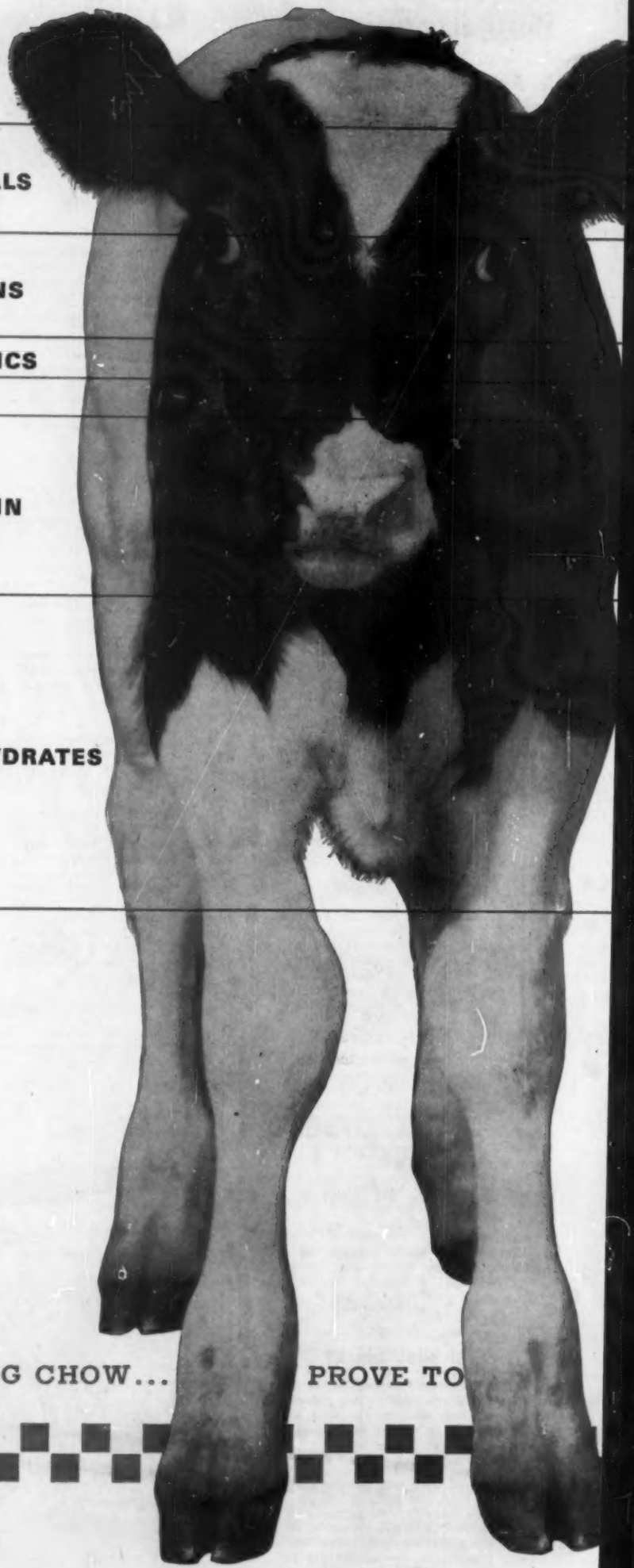
VITAMINS

ANTIBIOTICS

FAT

PROTEIN

CARBOHYDRATES



FEED PURINA NURSING CHOW... PROVE TO

Here's why
Purina Nursing Chow is "milk plus":

Vitamin A—helps prevent blindness, aids functioning of body organs.
B Vitamins—prevent anemia, nervous disorders; maintain body tissues.
Vitamin D—promotes bone growth, development.

Iodized Salt—aids digestion, prevents goiter.
Calcium, **Phosphorus**—vital to formation of bone, teeth.
Trace Minerals—promote proper bacterial action in the rumen.

Antibiotic Feed Supplement—for fast growth.

Hydrogenated Oil—for high energy, fat.

Dried Skimmed Milk—provides milk protein and lactose.

NURSING CHOW
LIFETIME
TAG OFFER
Just clip the coupon from any bag of Purina Nursing Chow and mail with 50¢ to get a lifetime nylon tag with rustproof chain.

Soybean Flour, **Dextrose**, **Dried Whole Whey**, **Wheat Second Clear Flour**—supply the calf with essential starch and sugar needed for fast, healthy growth.

Purina Nursing Chow is "milk plus"

You can count on Purina Nursing Chow to help you start baby calves fast . . . right! For Nursing Chow is like mother's milk plus extra vitamins, minerals, and antibiotics needed to help protect calf health. It's easy to mix and feed; calves love it. You feed one 25-lb. bag from four days to one month of age.

Developed by Purina Research to help you START CALVES FAST...RIGHT!

More than 2,200 calves raised at the Purina Research Farm helped build Nursing Chow. Holstein calves started at the Farm on Purina's Dairy Program average 320 lbs. at four months . . . 60 lbs. heavier than average Holstein calves the same age. Started the Purina Way, they grow fast, freshen at 24 months, are profitable producers throughout a long milking life.

* * * *

Order Nursing Chow by phone or pick up a bag for each of your calves at your local Purina Dealer's. He's at the familiar Red-and-White Checkerboard Store.

YOURSELF IT HELPS YOU START CALVES FAST...RIGHT!

USE "THE ORIGINAL"
NARROW BORE
For CLEANER, FASTER MILKING and
MASTITIS
PREVENTION!

TOP HAS NO CONCAVE "LIP" TO DRAW TEAT INTO INFLATION

WORLD'S LARGEST-SELLING NARROW BORE!

Dairymen across the U.S.A. report Maes Inflations prevent and clear up Mastitis. Their "velvety smooth" flat top has no concave "lip" to draw teats into the inflation causing udder congestion and irritation. Maes, the Original Narrow Bore Inflation, is designed scientifically correct. Our narrow bores, medium bores and large give teats the *support* they need. Priced at only 85c—much less than other Mastitis preventives!

Dear Sir: March 27, 1961
"We would like to say how much we like the Maes narrow-bore inflations. We were troubled with so much Mastitis before using Maes narrow-bore inflations and lost a lot of cows due to Mastitis. Since using Maes about six months, we have had hardly any trace of Mastitis. It used to take us about an hour and one-half to milk—now it takes us only one hour to milk more cows. We like the way they milk out the cows quick. Thank you." (Mr. Ralph Wolske, Rt. 2, Gillette, Wis.) Mr. Wolske milks his herd of 30 Holsteins with Maes Black Synthetic narrow-bore inflations.

Observe this illustration of the Maes Narrow Bore Inflation . . . SEE how the smooth flat top PREVENTS irritation and udder congestion! Switch now to Maes—to prevent, clear up MASTITIS!

Large Medium Narrow Bore Bore Bore

in 3 SIZES to fit SURGE SHELLS

Large, Medium Bore and Narrow Bore. Choice of brown gum rubber or super-soft black synthetic.

BUY NOW from YOUR
Maes DEALER
Or Order Direct on Coupon!

MAES MILKERS, INC. Dept. G-121, Marshall, Michigan
I enclose $_____ for the following inflations for my Surge Shells @ 95¢ each. On orders of less than $10, add 50¢ for postage and handling charges.

Narrow Bore ____
Medium . . . ____
Large . . . ____

Narrow Bore ____
Medium . . . ____
Large . . . ____

☐ tapered crank handle inflation brush 85c.

IMPORTANT! Fill out information below:
No. Cows
Breed of Cows
No. Surge Units

Name _____
St. (R.R.) _____
City _____ State _____

Maes
MASTITIS PREVENTION INFLATIONS
MAES MILKERS, INC.
DEPT. G-121, MARSHALL, MICHIGAN

New! NECK CHAIN MARKERS

Only 98¢ complete with chain and adjustable fastener (down to 83¢ in quantities).

SMOOTH-FLUSH numerals of solid Nylon, part of the marker itself, so paint, no indentation to fill up with dirt, slick smooth marker faces stay clean, bright, readable. Only Dana markers have smooth-flush numerals.

Any numerals, no need to buy in sets, and any assortment of colors earns quantity discount.

FLEX-TEMPERED Nylon, guaranteed unbreakable. Hit with a hammer, it simply springs back. Only Dana Flex-Tempered Nylon can stand this test!

7 COLOR Combinations to identify different breeding, feeding, age groups.

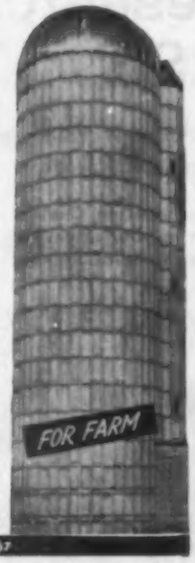
IMMEDIATE shipment . . . we are the manufacturer . . . fastest service, lowest price, direct to you

Free folder of full size pictures, prices, quantity discounts. Write for "FREE MARKER FOLDER." Address:

C. H. DANA CO., INC. Established 1861 Hyde Park 2, Vermont

Buy From Our Advertisers . . . They Are Reliable.

SINCE 1914
RIBSTONE
Only
RIBSTONE Silos
Have These Pioneer Advantages:
● Dense Nonporous Concrete
● Overlapped Joints
● Reinforced Concrete Staves
● Sealed Inside and Outside
● Strong Rib Construction



For Further Information Write, Wire or Phone Your Exclusive Manufacturer
S. J. Hoffmann & Sons, Cicero Park, Ill.
Mason & Lawrence, Elgin, Ill., Urbana, Ohio
S. J. Hoffmann & Sons, Muscatine, Iowa
H. J. Howe & Sons
Rochester, Wis. & Plover, Wis.
Southeastern Silo Company, Augusta, Ga., Petersburg, Va., Athens, Tenn.
Prairie Concrete Products
Prairie du Chien, Wisconsin
FREE! Silo Capacity Charts Will Be Sent Promptly Upon Request

LICENSED UNDER PATENT NO. 2591697

HOARD'S DAIRYMAN ROUND TABLE

Here is our winter grazing program

(Continued from page 1153)

ing in that the early and mid-September plantings of all combinations have been less productive, and yet no earlier than the late September and very early October plantings.

As a result of this study, we now begin planting in mid-September so that we will have completed all of our seedbed plantings by early October. In other words, we begin planting about 15 days later than was our practice heretofore. This practice has taken hold with farmers, and early September planting is now the exception rather than the rule.

Total yield for the season is not affected by planting date, so if we are planting for silage or hay only, we will plant whenever convenient, which might be in late November. Planting on a seedbed for grazing should be completed prior to October 15, if grazing prior to December 1 is to be obtained. For our oat-rye grass mixture, we use 3½ bushels of Moregrain or Delair oats plus 15 pounds of Gulf rye grass. Rye grass is seeded alone on a seedbed at 25 pounds per acre; rye grass overseeded on a sod, 20 pounds of Gulf rye grass per acre.

Brake: I start planting rye by September 1 and finish all plantings by November 1. With Abruzzi rye, 2 bushels per acre are used when planting; 2 bushels of rye and 20 pounds of clover; 1½ bushels Abruzzi rye, 20 pounds crimson clover, 25 pounds rye grass; 10 pounds of hairy vetch per acre.

All plantings are made as described and fertilizer is applied when preparing the land.

Isbell: I have best results when planting in September and October. I use 25 pounds per acre of rye grass (with volunteer button clover) or 5 pounds button clover, and 60 to 80 pounds of rye per acre. It is planted alone, for I never have to worry about not having enough button clover. At planting, I apply either 16-20-0 or 0-45-0 at the rate of 150 pounds per acre.

When do you begin grazing? How many hours do you graze? Do you graze even when frost is on the ground?

Tidwell: When the oats or rye reach 4 to 6 inches in height. We graze for two to three hours after the morning milking. If grass is plentiful, we will also graze at night. We graze with frost on the ground, but not with ice or snow or when it is extremely wet.

Leis: Graze when it is 3 inches, or as soon as it is rooted good — about 6 weeks after planting, if conditions are good. After the morning milking, cows go to pasture until noon; then they are fed alfalfa hay. Silage bunks are filled in the evening. They get about five hours of grazing every day, even when frost is on the ground.

Elizey: The oat-rye grass mixture will reach a grazing height first. We commence grazing when a height of about 12 inches is obtained, provided the plants have become well anchored. Usually, this will occur during the last half of October. The rye grass is grazed at a shorter height, about 8 inches. This will occur in mid- or early November.

We graze for about 1½ to 2 hours each morning after morning milking until such time as we can reasonably expect the coldest part of the winter to have passed. Usually, this is about mid-February. After that time we graze for longer periods as growth permits.

We continue to graze for 1½ to 2 hours in the morning, but will turn the cows onto the pasture after evening milking and permit them to remain on pasture until pulled off for morning milking. The all-night grazing at this time is as much for convenience as anything, since it is unhandy to remove cows from pasture at 9 or 10 p.m.

We try to delay grazing until such time as we can reasonably expect to be able to continue for at least 1½ to 2 hours each morning for the entire season. Once we commence, we do not withhold the animals from the pasture for any reason except when a covering of snow exists. This is very infrequent, and has happened only 4 times in the last 13 years. On mornings when the forage is frozen, we do delay turning in until the ice on the forage has melted.

In spite of all our plans, we must point out that some winters are so severe as to necessitate withholding animals completely for two or three weeks, sometime during the winter grazing season. In these instances, we cuss the weather and do the best we can with harvested roughage.

Brake: Of the crops I am using, Abruzzi rye furnishes the earliest fall grazing when it is about six inches high, whether planted alone or in the mixtures. Crimson clover and rye grass come on much later for grazing.

Normally, the cows graze about 1½ hours every morning, starting off in the fall and early winter months. The grazing period gets longer on into late winter and early spring until the cows are grazing all they want. Most of the time the cows are held off the pasture until the sun melts the frost. A light frost doesn't seem to hurt.

Isbell: Regardless of height, I graze whenever the root system is firm enough so it won't be pulled up. This can vary with the forage being from four to eight inches high. I rotate from one field to another, but my cows will always have access to at least one field. We graze even when frost is on the ground.

How long do you normally have winter grazing?

Tidwell: The weather decides this. Normally, we graze November, December, January, February, March, April, and some in May. Some of the early plantings are grazed in October.

Leis: Ten days in September; all of October, November; 20 days in December; 15 days in January; 20 days in February; all of March; and April will provide some pasture but of a low quality.

Elizey: All winter.

Brake: Usually, with favorable weather conditions, rye is ready for grazing by October 15, or soon

Continued on page 1166)

FREE TRIAL OFFER ON AUREOMYCIN CRUMBLES—GET YOURS TODAY!

If you milk cows, feed beef cattle, or raise hogs or sheep, AUREOMYCIN Crumbles can put "More Money in Your Pocket." Let them prove it!

Go to your regular feed dealer or supplier of veterinary products and ask for your FREE 1-lb. sample of AUREOMYCIN® Crumbles. Take it home and try it on a few animals.

Yes, a 1-lb. sample is sufficient for you to see results, for AUREOMYCIN Crumbles go a long way. You use AUREOMYCIN Crumbles by the tablespoonful!

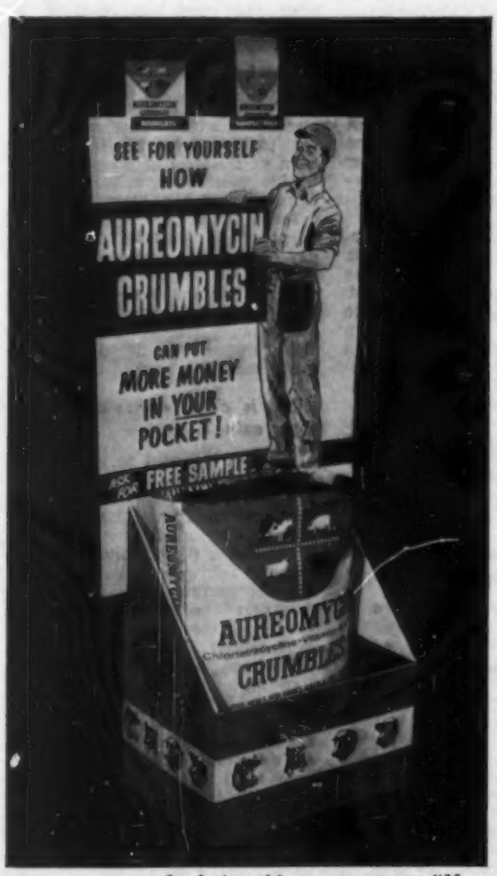
AUREOMYCIN Crumbles keep dairy cows in top health for top production; fight off disease and make for faster weight gains in your hog lot; protect against disease and give faster growth and better feed efficiency in your cattle feed lot; and get your lambs on full feed faster while protecting them against enterotoxemia.

To use AUREOMYCIN Crumbles effectively *you do not* need to change your present ration or in any other way vary your present management practices. Just top AUREOMYCIN Crumbles on your present regular ration.

The best way to know what AUREOMYCIN Crumbles can do for you is to *try them* and see the results for yourself. This offer is limited, so go to your dealer now and get that free sample. At the same time, get your copy of the AUREOMYCIN Crumbles booklet that gives complete instruction for using this great product.

And, as part of this special offer, we will send you all of the six items below if you will cut the insigne from the front of a 50-lb. AUREOMYCIN Crumbles bag and mail it as instructed! American Cyanamid Company, Agricultural Division, Princeton, N. J. ®*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.*

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow their directions for use.



Look for this AUREOMYCIN "More Money in Your Pocket" display at your dealers. Get your FREE sample of AUREOMYCIN Crumbles—try it and see the results for yourself!

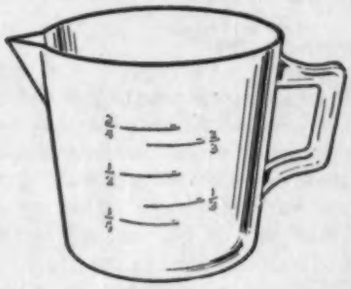
SPECIAL OFFER—*mail the insigne from the front of a 50-lb. AUREOMYCIN Crumbles bag, as instructed, and receive all of these items FREE.*

1—Can of AUREOMYCIN First Aid Spray

1—Packet of 10 "Treated Cow" Stickers

1—Syringe of AUREOMYCIN for Mastitis

1—Packet of Mastitis test blotters



1—8-oz. measuring cup

1—Bullet-type pocket pen

CYANAMID
AUREOMYCIN
CRUMBLES

BACKED BY MASTER MIX RESEARCH
MASTER MIX
THE PROOF IS IN YOUR PROFIT

MASTER MIX RESEARCH PAYS OFF AGAIN!!!

2 NEW CALF FEEDS

NEW IMPROVED
CALFLAC OFFERS

more feed efficiency — takes 28% less feed; better disease control — more antibiotics; better utilization by calf — over 90% milk solids and fats; easier mixing — stays mixed.

NEW IMPROVED
CALF STARTER PROVIDES

earlier weaning to all-dry feed; better palatability; faster rumen development; savings in feeding time and labor.

Master Mix Research makes two great feeds better than ever. New, improved Calflac now contains more protein, more milk solids and fats, more Vitamin A and more antibiotic per pound. Result: greater feed efficiency. New, improved Calf Starter now contains more protein and less fibre; the special Calf Starter pellet with milk promotes faster growth and better feed conversion; crimped grains provide better palatability and faster rumen development. Master Mix Research pays off again . . . and the proof is in your profits!

SEE YOUR MASTER MIX DEALER TODAY!

Central Soya
McMillen Feed Division
Ft. Wayne, Indiana

(Continued from page 1164)

after. Rye grazing extends into March and then the crimson clover takes over with rye grass coming in soon and lasting into May or early June. Hairy vetch supplies grazing for the cows through July until summer Starr millet is ready. With a mild winter, we don't miss any days grazing except for snow, ice, or extreme wet conditions. We hardly ever miss more than two weeks grazing during the season.

Isbell: From the middle of October to possibly June or first of July. Old alfalfa will fill in between summer and fall grazing.

Do cows make deep tracks in the pasture following heavy rains?

Tidwell: Usually, we have one pasture to graze on wet days, or graze the fescue pasture. The rye grass helps form a turf.

Leis: At first, yes. After it has been tramped for a month, it does not track badly.

Ellzey: Yes, but we believe this to be less damaging to the pocketbook than protecting the forage by withholding the animals, and experiencing a drop in production.

Brake: After the sod becomes well matted and packed from grazing, it takes a real heavy rain or hard freezing and thawing for the cows to make deep tracks in the pasture. If conditions are too bad, they don't go out. However, very few days are lost.

Isbell: Not in rye grass, but it does happen in rye.

What do you use to top-dress?

Tidwell: We top-dress with 65 pounds of nitrogen as soon as we get a stand, and another 65 pounds of nitrogen about 2 months later.

Leis: We do not top-dress.

Ellzey: Seedbed plantings receive two 50-pound nitrogen top-dressings (150 pounds ammonium nitrate each). The first is made sometime between the middle of December and Christmas, and the second is made during the latter half of February. Rye grass overseeded on a sod receives the February top-dressing only.

Sometimes planting and the application of anhydrous ammonia conflict, causing the anhydrous ammonia operation to be omitted. In these instances, we top-dress the equivalent amount of nitrogen from ammonium nitrate as soon as a stand of the planted crop is obtained. This would also apply to rye grass overseeded on a sod.

Brake: I top-dress with 200 pounds of ammonium nitrate per acre around March 1. During the middle of the winter most of the pasture gets a light compost.

Isbell: Do not top-dress.

What else do you feed your milk cows while on winter grazing?

Tidwell: Our cows are fed a 16 per cent commercial ration the year around. The cows are fed all the millet silage they will eat. If grass is plentiful, we stop the silage. We feed very little hay.

Leis: The grain mixture is 1,000 pounds milo, 600 pounds corn, 800 pounds oats, 800 pounds bran, 600 pounds soybean meal, 100 pounds minerals, 200 pounds dried molasses, and 1,000 pounds barley. We feed about one pound to three pounds milk. More is given the cow if she needs it to keep in good shape. We feed all the silage and alfalfa the herd will clean up.

Ellzey: Grain is fed to first-calf Jersey and Holstein heifers at a 1:2 and 1:3 ratio, respectively. The ratio is stepped up to 1:3 and 1:4 for older animals. We, like many people, are taking another look at grain feeding as a result of new findings on this subject.

One ton of our grain ration contains 790 pounds corn meal, 550 pounds cottonseed meal, 200 pounds molasses, 300 pounds rice bran, 150 pounds wheat bran, and 20 pounds each of salt, oyster shell flour, and defluorinated raw rock phosphate.

After the animals are removed from winter pasture each morning, they are fed millet or oat silage free-choice. Silage is fed in a concrete trough under a shed and animals can come and go between this and a wooded loafing area. While the cows are being milked in the afternoon, the silage trough is again filled from a self-unloading bunk feeder and cows again have free-choice access to silage between evening and morning milking. Again, they can come and go between the silage trough and the wooded loafing area.

Usually, hay is not offered the milking herd since we cannot harvest and store a good-quality hay in sufficient quantity to make it continuously available. The difficulty in this connection is the frequent, but usually very light, afternoon thunder showers during the hay-making season. We do purchase a certain amount of alfalfa hay to supplement the millet silage should we have to hold off winter pasture completely because of extremely severe and prolonged periods of adverse weather.

Brake: Good-quality peanut hay is kept in the hay rack before the cows all the time. They will eat 5 to 15 pounds per head per day, depending on the amount of grazing they get. When grazing is at its best, the cows will eat very little hay. Good corn silage is fed at the rate of about 40 pounds per head each day and, usually, by March 15, with lush grazing, they won't eat much silage.

I use a grain mixture of half ground corncob shuck meal and half of a 24 per cent protein supplement mixture. This mixture is fed to the cows in the milking barn at the rate of about 1 pound to 3½ pounds of milk. First-calf heifers are fed a little heavier.

Isbell: Each cow is given about 20 pounds of good alfalfa hay each day. My dairy ration consists of equal parts of oats and corn and enough protein added to make from 12 to 14 per cent protein. I add enough bulk so that each cow will consume from 16 to 20 pounds grain daily.

What is done with surplus winter grazing?

Tidwell: It could be used for silage, but mostly it is plowed under as a soil builder, as we plant the land back in millet for summer grazing or silage.

Leis: It is plowed under as green manure and ground is worked for summer pasture.

Ellzey: Whenever we plant enough winter pasture to supply our December and January need, we automatically create a surplus during late March, April, and May. Beginning in early March, we restrict animals to their grazing needs and permit the remainder of the forage to grow until the seed head is beginning to emerge from the boot, at which time the forage is harvested for hay or silage. If the animals are pulled off in early March, we will be able to harvest 9 to 11 tons of silage per acre.

Brake: Usually, the cows and heifers can take care of all the available grazing. If there is enough left of good quality, I chop it and put it into the silo.

Isbell: It is plowed back into the soil (whenever I have some).

THE END

New from Abbott Research

GALLIMYCIN®

ERYTHROMYCIN, ABBOTT

INJECTABLE

New Antibiotic for Pneumonia, Mastitis, Foot Rot

GALLIMYCIN Injectable is today's newest and one of the most effective antibiotic treatments for your real **trouble-maker diseases** — mastitis*, pneumonia, foot rot. It often works even where other drugs fail — because germs have little resistance to this new and powerful disease-fighter. It is safe too... no serious side effects to worry about.

Treats the whole animal — in difficult mastitis cases, GALLIMYCIN Injectable cleans up infection all over. Takes fast action against those tough strep and staph germs you've heard so much about. Within one hour after intramuscular injection, GALLIMYCIN builds up effective, disease-fighting drug-levels in the blood stream.

Only one dose daily is needed! Just one dose treats sick animals for a full 24 hours. And, when used early, results are quickly seen — often following just one or two treatments.

Make GALLIMYCIN a part of your herd health program. Take advantage of this special introductory offer on this powerful *new* antibiotic today!

* Do not use milk for human consumption during treatment and within 48 hours after last GALLIMYCIN injection.

ABBOTT LABORATORIES
CHEMICAL MARKETING DIVISION
Dept. HD-592-R
NORTH CHICAGO, ILLINOIS

Please send me ____ 100-cc bottles of new GALLIMYCIN Injectable. My check (money order) for $_____ is enclosed.

Name .....

Route ..... Town ..... State .....

110592-R

SPECIAL INTRODUCTORY OFFER

For a limited time only, we are offering the 100-cc bottle of GALLIMYCIN Injectable to dairymen at the special "get-acquainted-price" of $6.95 (regular retail price — $8.50). Each bottle contains enough antibiotic for up to 50 calf treatments, or up to six cow treatments.

MERCK

DAIRY CATTLE HEALTH BULLETIN

CAKED UDDER CAN'T BE PREVENTED . . . IT CAN BE TREATED

Caked udder or mammary edema is frequently encountered in high-producing heifers and cows shortly before or after calving.

The painful swelling—which often extends from the floor of the chest to the udder—can result in a serious loss of milk revenue for 1 to 2 weeks or longer. If the condition is neglected, or is a chronic problem at calving time, the udder attachments may break down prematurely and reduce the productive life of a valuable animal.

CAUSE OF CAKED UDDER STILL NOT KNOWN

The exact cause of caked udder is still not known. Most cases, however, are due to the strain placed on the heifer or cow as they prepare for the onset of lactation. The changes in blood protein brought about by the formation of immune bodies for the colostrum or first milk, are believed to be important contributing factors.

NOTE: A change in feeding practices, such as a reduction in grain, will not, in most cases, prevent udder edema. In fact, reducing the grain intake of high-producing animals just after calving may increase the possibility of ketosis or acetonemia.

NEW VETERINARY DRUG PROMISES PROMPT RELIEF OF UDDER EDEMA

Caked udder can now be treated with a new, effective drug, DIURIL® Boluses available from your veterinarian. Ineffective, time-consuming practices such as the use of massage, mild liniments, bag balms, and hot Epsom Salt packs can now be eliminated.

After treatment with the blue DIURIL Boluses, under the direction of your veterinarian, you will probably see and feel a difference in 24-48 hours as the hard, tender and swollen bag becames soft and pliable. Warning: milk taken from dairy animals during treatment and for three days after latest treatment, must not be used for food.

DIURIL Boluses for caked udder or mammary edema problems — before and after calving—are available only through your veterinarian.

Merck Chemical Division, Merck & Co., Inc. Rahway, New Jersey.

®Trademark of Merck & Co., Inc. for chlorothiazide.

Artificial Breeding

Faster sire proofs?

It may be possible by using 5-month records which are nearly as accurate as 305-day records. It would require more of the shorter ones, however.

by Dale Van Vleck

THE widespread use of artificial insemination by dairymen has presented many new problems. Two of these are: How can we choose the best bulls? How can we shorten this selection procedure?

These are important questions since one bull may sire 40,000 or more calves in 1 year with some 10,000 producing daughters the result of one year's use.

A bull with an average stud life of 4 years could leave 40,000 or more producing daughters each with a potential of 4 or 5 lactations. If daughters of this bull produced 1,000 pounds of milk per year more than the daughters of average bulls, the bull would have a lifetime value above the average bull of some **200 million pounds of milk**, or at $4 per hundredweight, of **$8 million.**

The testing time is illustrated in Figure 1. At least 48 months following initial use are required to prove the prospective bull.

After a decision is made to use or to cull, 48 more months will pass before the full benefit of an outstanding young sire will be noticed.

What can be done to reduce the minimum of 48 to 50 months during which the young sire is "out to pasture" and not in service?

It would seem that a reasonable possibility would be to use daughter records of less than 305 days. This possibility has been the subject of much research in this country as well as in New Zealand and Canada. Such records must:

- Be a good indication of 305-day production.
- Have a high genetic relation with 305-day yield.

We shall look at this evidence a little later, but first let us see what part records can mean to us. Let us suppose five-month records are to be used. It is easy to see that we could save five months in the proving procedure. This means that proofs are obtained 10 per cent quicker than under the standard procedure. The faster proofs would allow the stud either to:

- Test 10 per cent more bulls with the same facilities, or
- Test the same number with less cost.

The first alternative will lead to faster progress in two ways:

1. Genetic progress is inversely proportional to the turn-over rate in testing bulls. In other words, if this interval is shortened by 10 per cent, **the rate of genetic progress will be increased by 10 per cent.**

2. Genetic progress also is related to how many of the top bulls are saved and how many poor ones are culled. In other words, **the more bulls tested with the same number saved for use, then the faster the progress which can be made.** This will be true if the studs would test 10 per cent more bulls.

The second possibility also will increase genetic progress by 10 per cent, but since no more bulls will be tested, that extra gain would not be achieved.

Both possibilities also would allow for an increased service life for superior sires of about six months. The average stud life of tested bulls is about 3.5 years, so an increase of half a year could increase the service period by nearly 15 per cent. This also would reduce the overhead costs to the stud, as well as allow the dairyman the services of a superior bull for an extra six months.

We now have seen the value of quicker proofs, but a final question must be answered. Can five-month records accurately measure the true genetic value of a bull? All available evidence points to a favorable answer.

The genetic relationships, as measured by genetic correlations, of part records to 305-day records are high. The values for part records ranging from 1 to 10 months are shown in Figure 2.

We note that the genetic relationship between a 305-day record (10-month) and itself is 100 per cent. The other values must be lower than that. We can observe, however, that they are not much lower. The 5-month record, for example, has a genetic correlation with the 305-day record of 94 per cent. This high value leads us to investigate one final point.

We know that 40 to 50 daughter records provide a good estimate of a sire's genetic value. How many 5-month records are required to be equally as good? The answer to this question can be found by observing the following table which shows the approximate number of 5-month records needed to predict with equal accuracy the true genetic value of a bull as various numbers of 10-month records.

305-day records	No. of 5-month records to be equally accurate	Accuracy of proof (%)
20	24	74
30	35	80
40	47	84
50	58	87
100	111	93
150	160	95
200	205	96

The first column lists the number of records in a conventional proof. The second column is the number of 5-month records required for equal accuracy.

The last column shows the accuracy of predicting the true value of the sire for either the set of 305-day records or the set of 5-month records.

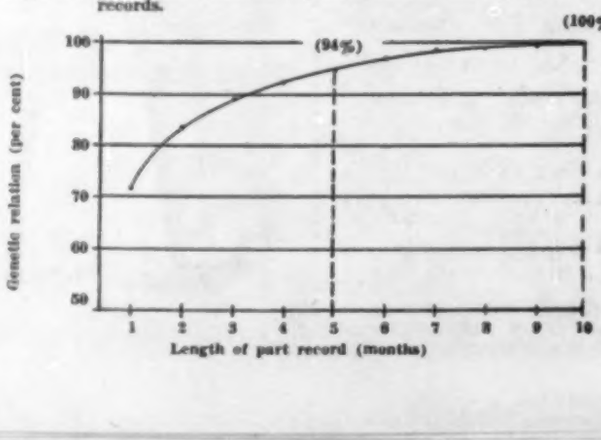
The table shows that **only a few extra 5-month records are required.** These can be obtained by mating the young sires initially to a few more cows.

The author is research animal geneticist, department of animal husbandry, Cornell University.

Figure 1. Minimum times to evaluate a young bull and for him to make a large impact on dairy production.

Stage	Age of bull	
Prospective bull is born	0	
Put in test service	12 mo.	Waiting time 4 years
First calves from test services	21 mo.	
Daughters are bred	36 mo.	
Daughter records begin	45 mo.	
First daughter records end	55 mo.	
Several daughter records accumulate	60 mo.	
Decision made to cull or to use at minimum age of 5 years, or 4 years after first test service.		
Heavy service if used	5 yrs.	Heavy service 4 years
Large number of daughters with complete records	9 yrs.	

Figure 2. The genetic relation of part records to 305-day (10-month) records.



Farmstead engineering

Let pipelines carry your quality milk

(Continued from page 1155)

Cost of pipeline systems

	Basic cost*
Stanchion barn:	
Portable "dumping" station	
with vacuum tank	$200-$325**
with milk pump	$600-$750
In-place pipeline (pump)	$1,500-$3,000
Dumping station with glass line	$600-$750
Milking parlor:	
Dumping station	
with vacuum tank	$200-$325**
with milk pump	$600-$750
with glass line	$750-$850
In-place pipeline (pump)	$1,500-$2,500

* Includes no milking units or vacuum supply with dumping station.
** Dumping station with vacuum bulk tank requires additional equipment for washing in-place, whereas, milk pump serves dual purpose on other systems.

Annual operating cost (80 cows)

	Annual cost	
Stanchion barn:	Total (80) cows	per cow
Manual	$1,050	$13
Dumping station (with pump, plastic line)	320*	4
Dumping station with pump and glass line	400*	5
In-place pipeline (pump)	800	10
Milking parlor:		
Manual	650	8
Dumping station (pump and plastic line)	275*	3.50
Dumping station (pump and glass line)	290*	3.62
In-place pipeline (pump)	550	7

* Does not include cost of milker units or vacuum supply system.

and the number of related accessories. The cost figures presented in the top table are approximate and rounded, but serve for comparative purposes.

It is estimated that manual milk handling requires one-third of the milker's time in a stanchion barn. Using this with $2 per hour for labor and 15 per cent annual cost of pipeline equipment, an approximate operating cost comparison for an 80-cow herd, including power costs and clean-up time, might be those indicated in the lower table.

In addition to the cost figures cited above, such factors as peak labor demand reduction, sanitation, convenience, and mastitis control through proper attention to milking units are important for consideration in comparing systems.

In some cases, the use of a milking parlor in conjunction with a stanchion barn may be less expensive than a pipeline. This alternative offers the further advantages of easier milking and more efficient grain feeding. It provides for cows to do most of the traveling. They can use the exercise and they have plenty of time.

To reduce travel distance for moving milking equipment to a minimum in milking parlor installations, the milk room should be located adjacent. This permits a very short pipeline and greatly reduces the cost of a complete bulk-handling system.

The vacuum-tank system eliminates the sanitary pump and reduces the cost of a total system to the range of the semi-complete dumping station system in a stanchion barn.

How to collect, to inspect, and to weigh production of individual cows when using pipelines has bothered some producers, but now this is possible in either stanchion barn or loose-housing pipeline systems. However, it does involve added operational effort.

From the standpoints of sanitation, flavor control, and particularly labor efficiency, completing the mechanical handling system for milk in bulk is highly important.

The sooner you can complete your system, the sooner you will have the same benefits your hauler and processor already realize from your investment in a bulk cooler. **THE END**

Imperial averages $821

The 14th Imperial Sale, held the day following the national meeting, saw 35 head of Brown Swiss sell for an average of $821.

Top was a bull calf consigned by Welcome In Farms, Inc., Dublin, Ohio, Welcome In Bingo, that sold for $6,000 to Badger Breeders, Shawano, Wis. He is a son of "Supreme" out of Welcome In Jade.

Welcome In Farms also consigned the top female, Welcome In Charming Ruby, an Excellent 4-year-old daughter of Welcome In Charmer. She was purchased by Robert Meythaler, Cold Springs Farm, Monroe, Wis., for $1,700.

Six other consignments brought more than $1,000. The sale was managed by Norman Magnussen, Brown Swiss Sales Service, Lake Mills, Wis. Martin Fromm was the auctioneer; he was assisted by Harvey Swartz and Ernie Kueffner.

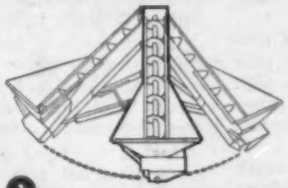
J. W. Bartlett dies

Dr. John W. Bartlett, 70, who retired in June as chairman of the department of dairy science at Rutgers University, N.J., died October 28. He was a member of the college of agriculture staff 45 years, having been appointed in 1916 as extension dairy specialist. He later was named to the resident teaching and research staff and became head of the department in 1922.

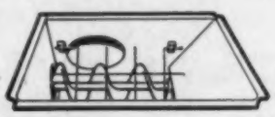
GEHL MIX-ALL

PAYS FOR ITSELF

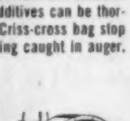
Exclusive features give you more for your machinery dollar



1 **SWINGING AUGER FEEDER.** Operates at any angle — swings tight against mixer for hauling or storage. Adjusts vertically to any height. Four auger speeds with shift lever.



2 **CONCENTRATE HOPPER.** Low mounted for easy access. Feed additives can be thoroughly mixed into feed. Criss-cross bag stop prevents bags from getting caught in auger.



3 **JUMBO 15-INCH MILL** with a big grinding chamber and long screen make big grain or hay capacity a Gehl feature. 10-inch model also available.

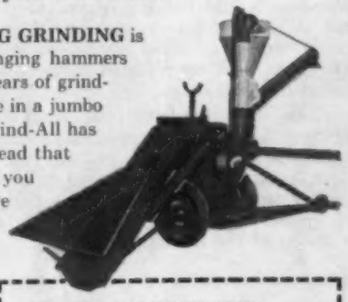
The Gehl Mix-All is the all-around machine that grinds, mixes and hauls your feed while *it pays for itself* in feed money it saves. You save buying basic feed ingredients in volume. You cut the cost of hauling grain to town and stop paying high feed-mill wages.

With the Mix-All, you set up anywhere, grind your own grain, ear corn or hay, mix in concentrates or supplements, and deliver the finished feed to bunks, bins or bags. Or, when feed is mixed, the two-ton weather-tight hopper is perfect storage until you need it.

Convenience is built right into the Gehl Mix-All. Your Mix-All lets you grind and mix whenever it fits into *your* schedule... two tons of feed in minutes... no more running out of feed. Gehl-engineered and Gehl-built, the Mix-All has features no other mixer offers... such as auger-feeding to the crusher. Gehl features mean better grinding and mixing... day-to-day convenience ... dependable service for years to come.

For more information and a handy worksheet to help you figure your own savings, mail the coupon. For a Mix-All demonstration, see your Gehl dealer.

BIG CAPACITY ... TIME-SAVING GRINDING is yours with the Grind-All. Free-swinging hammers with four grinding edges give you years of grinding on one set of hammers. Available in a jumbo 15-inch or big 10-inch model the Grind-All has an optional 17-inch crusher-feeder head that takes bale slices or ear corn as fast as you can feed it. All these and many more features make this feed-mill-on-wheels your best hammermill buy.



GEHL 102 YEARS OF SERVICE

GEHL BROS. MANUFACTURING CO.
Dept. MM-26-31, West Bend, Wisconsin

Please send me complete information on the Gehl Mix-All.

NAME .....
ROUTE ..... TOWN .....
STATE ..... ☐ I am a student

31-6181

Dairy Farm Home

Holiday Decorations that glisten and gleam

With just a touch of your fingertip, you can spray new life into old decorations or make new ones from everyday materials.

by Ann Joselyn

LEMON LEAVES, dried materials, and grasses are stunning when sprayed with metallic paints.

TO CREATE a real decorator's effect with your Christmas decorations, you need only a can of spray paint and a little ingenuity. The result will be completely festive surroundings in which to celebrate the holiday season.

Spray paint has become the interior decorator's ally because the metallic colors particularly, add a sheen of excitement to anything to which they are applied. And they can be applied by complete amateurs in seconds, in some cases.

Here are a few ideas on how to make Christmas decorations that will transform your home for the holiday season. You'll think of many more yourself once you become acquainted with the ways in which spray paints can be used.

Leaves and sheaves . . .

One of the most dramatic of ideas involves only a bunch of lemon leaves which can be purchased inexpensively at almost any florist and a can of either gold or silver spray paint.

Allow the leaves to dry up to the point where they no longer look really fresh and then spread them out on newspapers on the floor. It will take only a few minutes to cover the leaves completely in a sparkling film of gold or silver.

Only a light film of the spray paint should be applied so that the veining of the leaves remains evident. One of the real advantages of spray paints is that they can be used to give such a light coating of color that none of the texture of the object sprayed is lost.

Placed in a tall vase, the golden or silver leaves will add holiday drama to your home for as long as you care to use them. Huckleberry leaves or other foliage, small sheaves of wheat, and other dried materials also can be used in this way.

Even bare branches cut from trees and sprayed in silver and gold can make striking decorations. These can be sprayed, adorned with colorful baubles, birds, or other ornaments, and then hung over a mantel, attached to a door, or placed on a chest or anywhere a touch of the holidays is wanted.

Like-new wreaths . . .

Spray paints will revive old Christmas wreaths that have begun to look slightly worn. With spray paint, it's easy to cover all the different areas in no time at all. These can be sprayed either the traditional green or any other shade that harmonizes with the colors of the other decorations.

The small inexpensive artificial Christmas trees available in any variety store can be magically transformed into beautiful table centerpieces or coffee table decorations when they are sprayed with either silver or gold and then draped with silver or gold tinsel or with silver icicles. The result looks like an expensive decorator creation but the price is far below what it would otherwise cost.

Christmas tree balls that have dulled in color with age or on which the paint has become discolored can be revitalized with spray paints. The entire ball can be sprayed and then decorated by dusting with glitter.

Just a touch of the button on the spray can makes old tree ornaments, door sprays, wreaths, and centerpieces glisten with the gay magic of holiday gold, silver, or snowy white.

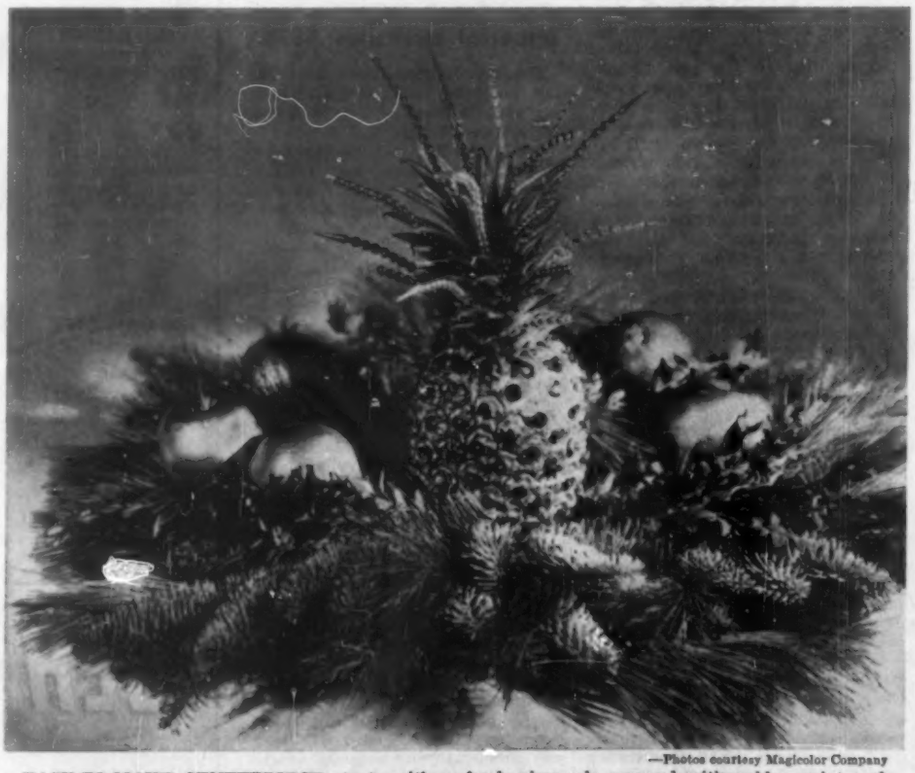
Artificial flowers which do not have a waxy surface can be sprayed easily with metallic paint to make a lovely holiday bouquet. The same is true of artificial fruit.

Don't stop with artificial. Try spraying fresh fruits for holiday centerpieces. A large pineapple, apples, and oranges can be transformed as shown in the photograph below.

A pair of pineapples also can be converted into unusual candleholders. Cut a hole in the tops of the pineapples of a diameter to accommodate the candles you plan to use. Spray the pineapple with gold paint. Stud the sides with sequins or spangles. Place each of the pineapples in a pie tin and surround the bottoms with short stems of evergreens. Insert bright red candles in the tops.

A cluster of gleaming bells can be made by spraying paper drinking cups with metallic paint. Suspend Christmas balls of different colors from the inside of the cups to form clappers. Hang six, eight, or a dozen of these together at varying heights and top with a bright ribbon bow.

Tin cans, soda straws, bottles, and wooden forks and spoons are some of the other things that take on new uses during the holidays with glittery paint and decorations. **THE END**



—Photos courtesy Magicolor Company

EASY-TO-MAKE CENTERPIECE starts with a fresh pineapple sprayed with golden paint and then trimmed with sequins and beads. Place on bed of evergreens; add golden apples, oranges.

From Day to Day

by Lois J. Hurley

MY FAMILY has long called me a Christmas morning fuss-budget. Before we start to open gifts, I provide two boxes: One for the shreds of wrapping paper, odds and ends of ribbon, tags, and so forth; the other to receive the carefully-folded large pieces of wrapping paper, the smooth lengths of ribbon, and the unmutilated bows and trimmings.

I've insisted that gifts be opened carefully, so that there was considerable yield for the "careful" box. The box of inevitable shreds was given to Freckles in the front hall to tear and toss and have himself a merry Christmas morning.

There has always been something in my make-up that shuddered to see an exquisitely wrapped package, on which much time, thought, and money had been spent, taken into rough hands, the trimmings and wrappings ripped to shreds and tossed into a heap to be burned. And, in a more practical vein, listen closely and I'll whisper a secret: I often used the paper, bows, and trimmings over again, on my own packages, another year. Oh, you do the same thing? I thought so!

My merry miserliness paid off, last year. Throughout the weeks of fall, we did a major remodeling job on our living room, front hall, and porch. Deadline was December 1; December 10 at the very, very latest. Take three guesses as to the time the last paperhanger moved out: Three days before Christmas Eve! And the day after he left, carpeting was laid; the next day, drapes were hung; the next day I decorated for Christmas; and the next day we put up our tree, prepared for an open house for 25 friends on Christmas Eve, and I wrapped my gifts, at odd moments sandwiched in between all the other jobs.

When I finally got to the job, not a piece of new wrapping paper bigger than six by six (inches, I mean) was available. I'd forgotten all about enclosure cards, tie-on tags, or any way of identifying myself. What to do? Turn to my box of "put-aways" from last year, of course.

I've always bought special paper for Kathy's gifts, and one of the things she's enjoyed was picking out my packages under the tree, identifiable by all being wrapped alike. Well, I'm sure she liked the pink and green paper I used last year, so here are big smooth sheets of it with just a bit of scotch tape here and there, and luckily, half a roll of the pink satin ribbon left, and here are a half-dozen of the German enclosure cards from her last-year's presents, already labeled "to Kathy from Mamma," so I'm all set. And there is also enough of this and that to take care of everybody.

For convenience in getting ready for Christmas, set up a long table in basement or some unused room where you can work at gift wrapping, candle trimming, wreath-making, spraying and all the attendant jobs of decorating, at odd hours, leaving as much litter as you wish and not bothering about cleaning up until the final tidying comes just before Christmas.

I open up a folding metal table at least two weeks before Christmas, in the basement room. As we buy gifts, they're taken right down, along with wrappings. From the under-the-stairs storage closet come the boxes containing candles, trimmings, wrappings left over, and all the oddments used in decorating the house, which we do early. These are put in accessible positions when the Christmas things are stored away, as they always must come out first. And, years ago, I started labeling all the storage boxes, which lightens the task.

The ironing board stands right at hand; any gifts to be pressed before packaging can get a handy touch-up. Ribbons for bows or other decorating uses can be pressed. A large waste-basket catches the throw-away debris; if things fall on the floor, no matter; sweep them up, later. If time runs out, or somebody drops in or mealtime rolls around, just stop where you are and leave the mess behind you.

It's a wonderful, relaxed way to get ready for Christmas; do establish such a center for yourself.

Recommended recipe . . .

There are as many fruit cake recipes as there are women making this delicious holiday treat and everybody has her favorite. Here is mine, which is elegant, adaptable to change, not too rich, and has been kept as long as six months, tightly wrapped, in the refrigerator, and served on the 4th of July.

I have omitted the almonds and substituted same poundages of mixed fruits for the pineapple, cherries, and citron, with satisfactory results. Currants are not a must, but add elegance, if available.

Dark Fruit Cake

2 cups butter
2 cups sugar
1 six-ounce glass grape jelly
12 eggs, well-beaten
4½ cups flour
2 pounds currants
2 pounds seeded raisins
½ pound candied pineapple, diced
½ pound candied cherries, cut in half
1 pound citron, diced or in strips
1 pound blanched almonds
1 pound pecans, broken
2 cups grape juice
1 tablespoon cinnamon
2 teaspoons allspice
½ teaspoon nutmeg
2 teaspoons cloves
2 tablespoons vanilla

Prepare fruits; mix and place in large crock; pour grape juice over them and let soak overnight. Sift spices and flour together three times. Cream butter; add sugar; cream together till light and fluffy. Add jelly and mix thoroughly; add well-beaten eggs and flour alternately, mixing carefully after each addition.

Add nuts gradually, distributing well through batter; add fruits, small amount at a time and mix well. Add flavoring and mix. Grease three loaf pans; line with well-fitted waxed or brown paper; and bake three hours in a 325-degree oven. Allow cakes to cool in pan; remove; trim away any over-browned spots; decorate as desired and wrap in muslin, soaked in favorite beverage. Wrap airtight in double thicknesses of Saran Wrap and store in refrigerator.

8270. Give your dress-up wardrobe a fresh new look with this simple elegant date dress that's kind to a young figure; easy to sew. Sizes 10, 12, 14, 16, 18, 20. Bust 31 to 40. Size 12, 32 bust, 3¼ yards of 35-inch. Price 35 cents.

8285. This good-looking shirtwaist dress that buttons down the front has roll-up sleeves and a set-in belt. Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½, 26½. Bust 33 to 47. Size 14½, 35 bust, 4⅞ yards of 35-inch. Price 35 cents.

1433. Easy sewing for the junior seamstress: A clever jerkin and skirt ensemble that requires a minimum of fabric. Ideal for classroom hours. Sizes 9, 11, 12, 13, 14, 16, 18. Bust 30½ to 38. Size 11, 31½ bust, jerkin, ⅝ yard of 54-inch; skirt, 1⅞ yards. Price 35 cents.

8142. Adorable brother and sister stuffed dolls dressed in gay sailor togs. Use yarn for hair; tie sister's pigtails with a gay ribbon. One size — 30 inches. See pattern for yardages. Price 35 cents.

8290. The newest in your favorite classic for a new season is this shirtwaister with sleeve choice and nicely shaped collar. Sizes 36, 38, 40, 42, 44, 46, 48, 50, 52. Bust 38 to 54. Size 38, 40 bust, short sleeves, 5¾ yards of 35-inch. Price 35 cents.

8272. Welcome as a compliment and so becoming to the half-size figure. Slim and trim all-occasion style is cut on smooth princess lines. Sizes 12½, 14½, 16½, 18½, 20½, 22½, 24½, 26½. Bust 33 to 47. Size 14½, 35 bust, 5½ yards of 35-inch. Price 35 cents.

Pattern Nos.	Size

HOARD'S DAIRYMAN, PATTERN DEPT. NO PATTERNS EXCHANGED
Fort Atkinson, Wis.

$_____ for patterns, 35c; first class mail, 45c.

NAME _____ RFD _____

CITY _____ STATE _____

Fall, winter pattern book, "Basic Fashion" — 35 cents. "Success in Sewing" — 35 cents. Needlework Album — 25 cents. Centennial Quilt Book — 50 cents.

Cornish pasty

Handed down by generations of Cornish women, this hearty pastry dish has long been a favorite where the men work long, hard hours.

by Catherine Harris

A MEAL IN ITSELF, Cornish pasty needs little accompaniment. It may be served with tossed green salad or cabbage slaw, with fruit for dessert.

IN CORNWALL, England, most of the men were coal miners. When they immigrated to the United States, a goodly number settled in southwestern Wisconsin to mine lead. They worked long, hard hours in the mines and at noon needed a substantial meal that was warm or could be warmed.

So a one-dish meal made with suet, meat, potatoes, and onions and put between pastry was devised. We call it Cornish pasty. It can be made in individual sizes; in a one-crust variety with the bottom crust larger than the pan and the excess folded over to make a partial upper crust; or like a two-crust pie.

The individual pasties or a large piece of the one-crust variety was wrapped by the housewife and put into the lunch bucket. At noon, the miner heated his pasty over the lamp on his cap.

In many mining communities today, the Cornish influence is still felt. Cornish pasty is served for either lunch or dinner, and the individual pasties are taken on picnics as we do hamburgers.

Cornish pasty

(6 to 8 servings)

Filling for two-crust variety:

1 pound round steak, cut in ½-inch pieces
¼ cup finely-chopped suet
1½ cups potato, diced
1 cup chopped onions
2 teaspoons salt
¼ teaspoon pepper
Chopped parsley as desired

Mix all ingredients well, rubbing so that meat is well coated with the suet. Place in pastry in 8-inch deep or 9-inch pie pan. Cover with top crust.

Now if desired the dish may be held in the refrigerator until baking time.

Just before baking, cut steam vent in top crust, not earlier as potatoes will darken. Bake in 350-degree oven for 10 minutes. Reduce heat to 300 degrees and bake for 1 hour and 50 minutes more. Slow baking is necessary to tenderize the meat. You may need to adjust oven heat either way so that meat is tender and crust well browned.

Pastry for two-crust variety:

1¼ cups flour
1½ teaspoons salt
1 cup vegetable shortening (If lard is used, increase flour to 2 cups.)
⅓ cup ice water + 2 tablespoons
Flour for rolling

Mix dry ingredients and shortening with blender or hands until mixture is size of large peas. Add water all at once. Handle dough only enough to get it to stick together, using tips of fingers. Mixture will be wet.

Flour pastry board heavily. Divide dough into two pieces, one for bottom crust slightly larger than the other. Put dough for bottom crust in the flour. Turn so other side is also well floured. Start rolling, sprinkling with more flour and carefully raising dough off the board and reflouring beneath. Roll to fit pan, leaving crust slightly thicker than for fruit pie. Work in more flour than you normally do when rolling out crust as dough is richer. This seems to result in a flaky texture. Handle as little as possible.

Fit lower crust into pan. Fill with meat filling, seasoning a bit more if desired. Moisten the top edge of lower crust with water. Roll top crust and lift in place. Seal edges carefully.

Proceed with baking.

How to serve . . .

Cornish pasty is practically a meal in itself. It needs little accompaniment, a tossed green salad or a cabbage slaw, and for dessert, fruit or some airy confection.

It is a nice company dish as it is easily served and at the last minute you have only the pan in which it was baked. Should you have spare time one day, make several for the freezer.

They can be frozen raw if you intend to use them up very shortly and if you remember **not** to cut a vent in the top crust until just before baking. But it is more advisable to bake them ahead, cool, wrap for freezing, and then simply warm them up when you are ready to use them or have unexpected company.

Individual pasties . . .

For 10 to 12 servings, double the recipe for meat filling.

Roll pastry into 6-inch rounds, larger or smaller as desired.

Put some meat filling on each round, adding a little water if you wish. Dampen edge of pastry; fold over; press edges together and crimp edge with fork, or thumb and finger.

Instead of using the pastry recipe given, which is rich and wet and has to be layered with flour in the rolling, you may want to use your own regular 2-cup plain pastry recipe. It will be easier to roll, but probably not quite so flaky.

Brush individual pasties with beaten egg; make two little slits in top of each; bake in hot oven (400 degrees) 45 minutes to 1 hour or until meat is done. Serve hot or cold.

This can be a finger food. If you make the pastry rounds smaller than the 6 inches suggested, you will find them fun to serve as a hot hors d'oeuvre. **THE END**

BEFORE ADDING TOP CRUST, season meat filling a bit more if desired. Moisten the top edge of lower crust with water.

BEFORE BAKING, cut steam vent in top crust, not earlier or potatoes will darken. Bake slowly to tenderize meat.

Poultry

by Joe W. Sicer

Learn about marketing orders

Your decisions about federal marketing orders can be all-important in determining the way you will operate your turkey, broiler, or egg production business in the future.

TURKEY producers and turkey hatching egg producers soon will be asked to vote for or against federal marketing orders covering their products.

Although broilers and market eggs were not included in the Agricultural Act of 1961, it is highly possible that such enabling legislation may be enacted shortly after the first of the year and marketing orders be proposed for these poultry products.

The issuance of marketing orders would initiate an entirely new factor into poultry operations. All concerned should inform themselves as fully as possible on the provisions and possible effects of marketing orders on their businesses so that intelligent, informed decisions can be made.

Orders regulate handlers . . .

A marketing order is a legal instrument issued by the Secretary of Agriculture specifying terms and conditions of marketing particular commodities in a given area. A marketing order is binding upon all "handlers" of the product. Thus, the presently proposed order on turkey hatching eggs would be binding on all who "handle," (in this case, set) turkey hatching eggs in incubators regardless of whether he sets only his own eggs or if he buys hatching eggs.

The order on turkeys would be binding on those who slaughter and process turkeys for market.

The proposed turkey marketing orders do not provide for direct control over the number of turkeys grown or the number of hatching eggs produced; however, allotments allowed to handlers will indirectly limit producers.

For instance, if a turkey hatcheryman is allotted a number of eggs which he can set that is below the number needed to meet his orders for poults, he must adjust somehow. He may short all of his poult orders or sell the poults available to his preferred customers. Or, he may decide to raise all the poults himself. In any event, the number of poults started will be reduced below what would have been the case without the marketing order.

How they are started . . .

The objectives of marketing orders will vary somewhat with the product covered but, in a broad sense, the chief purpose is to provide for an orderly flow of the product to market so as to avoid unreasonable fluctuations in supplies and prices.

Marketing orders are based on the Agricultural Marketing Act of 1937. Turkeys and turkey hatching eggs were included in the Act of 1961.

A request for formulation of an order program usually is made by an industry group, although the Secretary of Agriculture can take the initiative. With turkeys, the National Turkey Federation made the initial request.

An industry committee draws up a proposed program and submits it to the Secretary.

After due notice, public hearings are held where all interested persons may speak or file written briefs or arguments.

A recommended decision, setting forth terms of the program, is then published by the U.S.D.A. and an opportunity to file exceptions is given.

A final decision is then issued by the Secretary and the proposed program is submitted for producer approval through a referendum. Counting only those voting in the referendum, if two-thirds of the producers or if those producing two-thirds of the volume vote favorably, the order is approved. Agreement by handlers of not less than 50 per cent of the volume of the product clears the road, but the Secretary can issue the order even without the required proportion of handlers agreeing if he concludes that the order is the only practical way to advance the interest of the producers.

> **One must be poor to know the luxury of giving.**
> **—George Eliot**

The marketing order program can attempt to achieve its purpose through one or more different methods, among which are:

1. Allotments regulating the amount of the commodity which a handler can handle, such as allotting the number of hatching eggs a hatcheryman can set.
2. Establishment of methods for determining the extent of any surplus of a commodity and for setting up a reserve pool to hold that surplus out of regular trade channels. With turkeys, for instance, processors may be directed to set aside a percentage of the birds they process during a specified period. These turkeys would be held in a reserve pool and disposed of in a way that would not compete with the normal market, such as exported or used in the school lunch program. Any proceeds above the costs of handling, storing, and disposition would be distributed to the handlers and, through them, to the growers.
3. Grades, size, quality, or maturity of a commodity that can be marketed may be specified.

Milk marketing orders use a different approach, establishing a classified pricing plan based on the use made of the milk.

A marketing order is administered by a committee of producers and handlers selected by the Secretary of Agriculture. This committee sees that regulations are carried out, investigates complaints of violation, and recommends amendments. It can hire a staff to do the work which it directs. Funds to meet the cost of administration are raised by pro rata assessments on the handlers.

Chances for success . . .

Any statement about the possibilities for successful achievement of goals with turkey, broiler, or egg marketing orders is difficult, if not dangerous.

The marketing order program expanded rapidly during the 1950's. In December 1960, there were in operation 42 federal fruit and vegetable orders, 80 milk orders plus numerous state marketing orders. All but a few programs regulate marketings for only limited areas. The proposed turkey orders are national in scope.

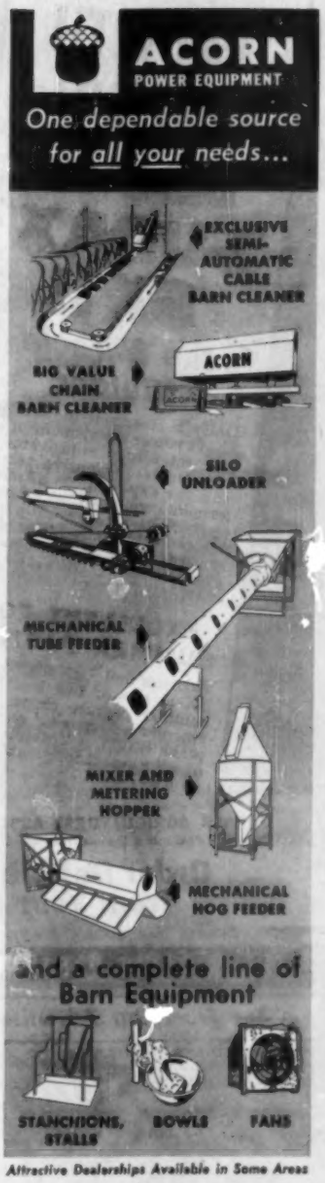
Experience thus far indicates that factors contributing to successful operation include the concentration of production and supply in a compact area, the absence of unregulated products highly competitive with the regulated one, a perishable product, a high capital requirement, and difficulty in making a quick adjustment to price changes.

In general, marketing orders have made for more orderly marketing conditions. They have provided modest price improvements for producers but have increased prices to consumers. They are financed and largely administered by industry.

On the other hand, at least part, and maybe quite a bit, of the price gain can be offset by higher production costs due to inefficiencies created and the cost of administration. They mean more governmental control. Often, when allotments are set, no provision is made for anyone to increase volume to gain efficiency or for new entries into the business.

Since every marketing order differs in some respects, each should be judged on its own merits.

Copies of the proposed turkey orders can be secured from the Hearing Clerk, Room 112A, Administration Building, U.S.D.A., Washington 25, D. C. Leaflet PA-479, "A general explanation of marketing orders," is available from the Government Printing Office in Washington, D. C.



Attractive Dealerships Available in Some Areas

ACORN EQUIPMENT CO.
Stevens Point, Wis.

Send more information on:

☐ Cable Barn Cleaner ☐ Mixer and Metering Hopper
☐ Chain Barn Cleaner ☐ Mech. Hog Feeding and Cleaning Equipment
☐ Silo Unloader
☐ Mech. Tube Feeder ☐ Barn Equipment

NAME_____
ADDRESS_____
P.O._____ STATE_____

YOUR OWN BREED ON YOUR STATIONERY

We print stationery for thousands of breeders all over the U.S.A. Distinctive style and personal touch. Picture of your own breed for you to choose from. Write for stationery circular today.

HOARD'S DAIRYMAN Fort Atkinson, Wis.

DAISY Cattle Markers

Solid brass tags and brass-plated chain

No. 21—FOR NECK. Case-hardened chain. Tag numbered both sides. $13.25 per dozen delivered.

No. 17—FOR HORNS. Case-hardened chain. Tag numbered both sides. $9.50 per dozen delivered.

No. 38—DOUBLE PLATE NECK MARKER. Combination strap webbing and heavy chain, two marker plates. $14.50 per dozen delivered.

Write for catalog. Sample mailed for $1.00.

GOLDEN ARROW FARMS
Dept. C, P.O. Box 7 Huntington, Indiana

GROWTH POWER!

DEKALB "SUDAX" SX-11

the Miracle Yielder

DeKalb Research in "Sudax" SX-11 comes up with one of the greatest forage improvements ever made. Extensive testing and the experiences of many farmers conclude that no other pasture and green-chop crop can come up to SX-11 for quick growth, flavor and tremendous yields. SX-11 IS TRULY a MIRACLE Crop!

EXCELLENT FOR SUMMER PASTURE

Farmers find DeKalb "Sudax" SX-11 one of the finest of all summer pasture crops. Quick emergence, amazing regrowth, make SX-11 a "pasture paradise." Plant it for great grazing in '62.

DEKALB AGRICULTURAL ASSOCIATION, INC., DEKALB, ILLINOIS

Commercial Producers & Distributors of DeKalb Seed Corn, DeKalb Chix and DeKalb Hybrid Sorghum

Order DeKalb "Sudax" SX-11 from Your DeKalb Dealer

"DEKALB" and "SUDAX" Are Brand Names. SX-11 Is a Variety Designation

THE MIRACLE PASTURE AND GREEN CHOP CROP

Buy From Our Advertisers . . . They Are Reliable.

DON'T WAIT UNTIL YOU NEED CHAINS!

If you get stuck in the snow this winter don't count on a St. Bernard dog to save you. Get WEED V-BAR TIRE CHAINS now and carry them in your trunk for use when needed on regular or snow tires. They'll keep you going when other drivers are spinning their wheels. 288 or more steel gripping points stop you short and sure—prevent killing skids. For traction you can trust, get your Weed Chains now! Easy one-hand fastener. Handy "drive-on" applier.

ACCO WEED V-Bar TIRE CHAINS

American Chain & Cable Company, Inc., York, Pa., Bridgeport, Conn.
In Canada: Dominion Chain Company, Ltd., Niagara Falls, Ont.
In Business for Your Safety

How to mechanize the farm woodlot

(Continued from page 1156)

Is this possible? Absolutely. To know what others are doing just obtain a copy of "Forest Industry Opportunities in Rural Development" from your forester. It is U.S.D.A. Agricultural Information Bulletin, No. 222.

Key to success . . .

Mechanization is the key to success here as in other branches of agriculture. The way to profit is usually more production per man-hour or man-day. Machinery which puts to use the energy of gasoline or electricity is the answer.

Woods work is both arduous and dangerous. It is even more hazardous than farming, however, mechanical equipment is one-by-one removing the heaviest of the work load and making it safer.

For the small woodlot operator, the equipment must be on rubber tires, be large enough to be efficient, and small enough to travel on the highway, through standard gates and along woods roads.

Is such equipment available? Yes, to a degree. A woods equipment research project at Cornell University explored several aspects of this problem. Private industry also has been working on this so that you will find more and more of this equipment demonstrated and on exhibit at logging and forestry shows. The following are some of the pieces of equipment experimented with at Cornell.

Use logging arch . . .

To adapt the small farm tractor to woods work we built simple shop-made logging arches — one a three-point hitch type and the other a trailer type for use with a winch or a hydraulic cylinder.

Commercial trailer arches of small size are now on the market and I have seen advertisements for a three-point hitch patterned after our unit (no patent has been obtained on any of our units).

To bring a western development east, we built a so-called skidder-loader mounted on a truck chassis. This was intended to reduce labor and increase speed. Many eastern loggers are now using units of this type on favorable terrain.

Delimbing machine . . .

A delimbing machine was a design problem for a student working on his doctor's degree.

A pilot machine was built to handle conifer thinnings up to 10 inches in diameter. As the rolls pulled the tree through, three high speed cutters, similar to router bits, rotating around the bole of the tree, removed the limbs. While there were certain "bugs" to iron out, the principle of the machine appeared sound, and it, with a cutting and packaging device, would in effect be a pulpwood combine. As yet, no takers — it's got to be a production model.

Portable cut-off saw . . .

Several "old timers" suggested that a portable tree length (small diameter), cut-off saw would greatly assist producers of pulpwood, fireplace wood, and bolts for furniture stock. We, therefore, built a portable automatic cut-off saw which could be either automatic, (or semi-automatic for knot removal) with a variable length of cut in 1-inch increments from 12 inches to 4 feet.

Commercial wood chipper . . .

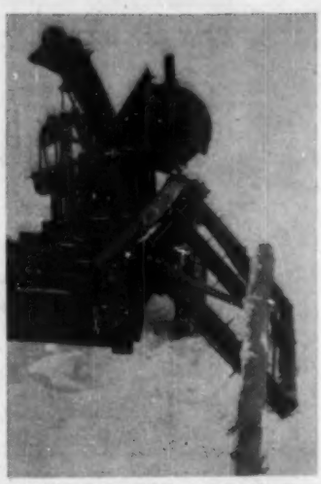
The wood product which is continuing the greatest increase in consumption is pulp for paper and paper board products. Because wood chips place wood in a form which can be readily handled by mechanical means, we have been intrigued by the possibilities which portable wood chipping can bring to the small woodlot economy.

Without going into detail, the correct chipper in capable hands can provide a product accurate enough for paper mills and also grind up wood waste for agricultural use producing a completely different size and shape of wood fragment. By chipping locally, the drawing radius of a pulp plant can be doubled (quadrupling the supply) because larger loads of chips than pulp can be handled faster and cheaper.

Chips are also being made into stable furniture and building materials boards and core stock. It can be charcoaled and made into briquettes, fed mechanically into furnaces, and used to loosen clay soils or add moisture holding capacity to sandy soils.

A final word . . .

A tremendous opportunity exists to manufacture products from improved small farm woodlots. Perhaps your community should look into the possibilities of rural development of local forest industries. Maybe you or your son should consider the business of a custom woodlot operator. Forestry plus manufacturing of forest products is a $20 billion industry in this country — 5 per cent of our gross national product — second only to the rest of agriculture. **THE END**



PORTABLE SAW cuts off tree trunk at the desired length. Elevators and conveyor move poles by power into the circular saw.

3-POINT HITCH ARCH can be built in farm shop. In off seasons, large logs can be snaked out of woods with farm tractor.

Thinking of raising heifers?

(Continued from page 1151)

Table 1. Feed cost per heifer from birth to 2 years of age

Age	Kind of feed	Pounds of feed	Price per pound	Cost
Birth to 2 months	Whole milk	134	3.2¢	$4.29
	Milk replacer	50	17.5¢	8.75
	Calf starter	75	5.6¢	4.20
	Leafy legume hay	50	1.0¢	.50
2 to 4 months	Calf starter	175	5.6¢	9.80
	Growing ration (14 to 15 per cent protein)	50	2.4¢	1.20
	Leafy legume hay	200	1.0¢	2.00
4 to 6 months	Growing ration	200	2.4¢	4.80
	Hay	400	1.0¢	4.00
6 to 12 months	Growing ration	600	2.4¢	14.40
	Hay	1,400	1.0¢	14.00
	Pasture (hay equivalent)	400	.5¢	2.00
12 to 24 months	Grain ration	500	2.4¢	12.00
	Hay	5,000	1.0¢	50.00
	Pasture (hay equivalent)	2,400	.5¢	12.00
	Total feed cost			$143.94

Table 2. Cost of raising dairy heifers in Wisconsin

Item	Cost
Feed and pasture	$144.00
Labor — 30 hours, $1.00/hr.	30.00
Housing and equipment	14.00
Bedding — 24 months, 1.5 tons @ $10/ton	15.00
Breeding fees	5.00
Veterinary and medicine	1.50
Interest and insurance	8.00
Transportation and selling cost	3.00
Miscellaneous costs	4.00
Total cost other than calf	$224.50
Cost of calf	20.00
TOTAL	$244.50

lem in commercial heifer production. Continued sales by any heifer grower depend greatly on the quality of calves that he buys. Some heifer raisers find they must travel long distances to obtain a satisfactory supply of calves. If this is necessary, the grower must schedule stops before he starts the pick-up route to reduce the time calves are on the truck.

When a charge is made for every resource used in producing heifers, profits, if any, look very slim. Wisconsin milk cow prices from 1949 to 1958 averaged $212. Prices within this period varied from $290 in 1951 to $170 in 1955. The custom grower with a contract may be in a more stable situation.

Assuming a total cost, not including the cost of the calf, of $224.50, a gain of 920 pounds (80 pounds to 1,000 pounds) in the 2 years would cost over 24 cents per pound. A charge for raising of 25 cents per pound would leave little profit for the grower.

Disease transmission and death loss can be a major problem. A 5 per cent death loss will reduce the average income per heifer by about $12.50, and may mean the difference between profit and loss. There must be strict checking of calves brought in and superior sanitation. Calves must be vaccinated and an accurate record kept of identification and breeding dates.

Even if profits look slim, raising dairy heifers may prove a desirable enterprise under certain conditions. The farmer who has buildings, feed, and pasture, plus some labor can market these resources by raising heifers. He can earn a wage for his labor, a farm price for pasture and feed, and a return on capital tied up in buildings and equipment. A careful look, however, should be taken at other enterprise possibilities before a substantial investment is made in the commercial heifer business **THE END**

Is your chimney safe?

(Continued from page 1157)

A common cause of difficulty in chimneys serving wood-burning stoves or furnaces is the formation of creosote. Green wood may contain as much as 40 per cent water, dry wood 15 to 20 per cent water. When wood is burned slowly it gives off acids which in combination with water form creosote.

When the draft is strong and an active fire is maintained, most of the creosote is carried off into the atmosphere as vapor. When the fire burns slowly and the draft opening to the furnace is closed, the gases remain in the chimney long enough to condense.

Some serious creosote problems have been eliminated by slightly increasing the minimum draft opening at the furnace.

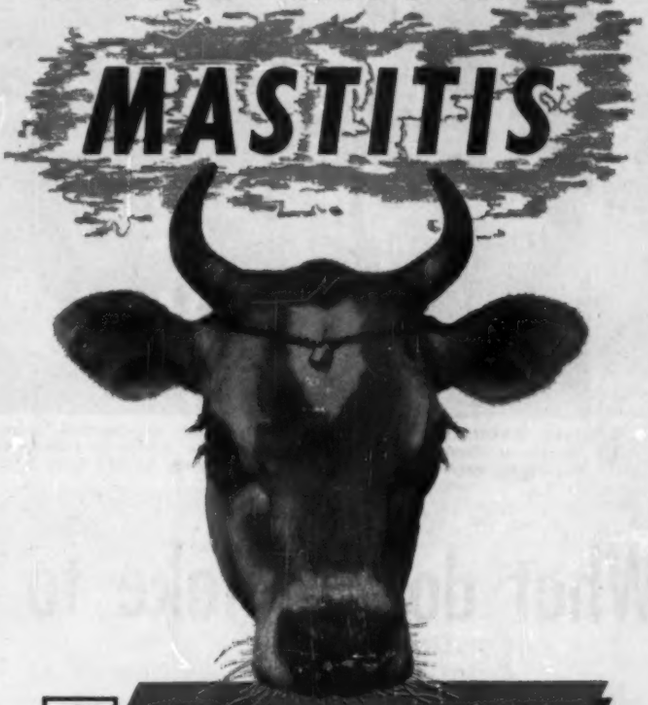
Creosote trouble is greatest in outside chimneys in cold climates because the walls of these chimneys are cold and the flue gases condense quickly. Creosote formation is unusual in chimneys that are surrounded by warm rooms.

Use smoke test . . .

The tightness of a chimney flue can be checked by giving it a smoke test. Build a small fire in the flue or in a stove or furnace connected to it. Use a material which will produce dense smoke. When the smoke is rising in a dense column, close the outlet at the top of the flue and observe the chimney carefully for smoke leaks.

It is best to apply this test before the chimney is put into use and before the interior of the house is completed. At this time defects can be found most easily and corrected. **THE END**

Costs More because it Does More for MASTITIS



DR. LEGEAR CORTA CLEAR®

• returns cows to full production faster

• reduces permanent damage

Check *the performance records* of your dairy cattle against *the cost of their upkeep.* Absenteeism from the milking line and permanent damage due to mastitis may be reducing your profit margin. What you want, naturally, is a mastitis remedy that will get your cows back to maximum production in short order. The speed and efficiency with which Corta Clear works to help rid your cows of mastitis is due to the costly combination of drugs that it contains. Corta Clear spreads to all areas of the quarter quickly. Its two powerful antibiotics and two sulfa drugs work together to reduce infection. The wonder drug, hydrocortisone, promptly helps lower the inflammation that causes the formation of permanently damaging scar tissue. One treatment is normally sufficient for treating acute and chronic mastitis. **Caution:** As with all mastitis remedies, milk taken within 72 hours after treatment must not be used for human consumption.

CALF TABS:® Four active drugs stop bacterial action of scours and pneumonia, protect calf from further damage, help return it to normal. Give in tablet form or dissolve in water or milk for drench.

UDDER OINTMENT: A soothing preparation for external massage treatment of udders. Effective for treating sore teats, cuts, bruises and chapping.

Also available: COW PRESCRIPTION®— COW CLEAN®—CALF VITAMINS.

DR. LEGEAR Quality ANIMAL HEALTH REMEDIES

69 YEARS OF SATISFACTION • Dr. LeGear, Inc., St. Louis, Mo.

Young Dairymen — *Getting started in dairy farming* — No. 35

CALF RAISING is a specialty of James Isaac Messler, 1961 Star Farmer of America. He is often asked by other farmers for advice on raising their replacements. With such registered stock as the one above, he has built a top-producing herd.

For James Messler it was hard work, good management, and the desire to become successful. He has worked his way into an operation valued at nearly $50,000.

What does it take to become... a Star Farmer?

by Wayne Harr and Larry Krug

FROM a grade calf given to him when he was 4 years old to a 50-animal dairy herd and his own farm at the age of 20 — that is the success story of James Isaac Messler, 1961 Star Farmer of America.

Young Messler was named the top Future Farmer in the nation at the National FFA Convention in Kansas City, Mo. in October. With the award came a check for $1,000, but he has far more than this award of recognition to show for his efforts.

The tall, blond, husky Tennessean worked his way to fame and a farming operation valued at nearly $50,000 in the rolling hills of Greenback, Tenn.

At present, the Star Farmer owns 27 registered Holstein cows, 20 heifers, and 3 calves. These animals are kept on the 200-acre home farm with his father's herd of 25, giving them a milking herd now of 35 cows. They have 12 heifers scheduled to freshen by January.

Owns 193 acres . . .

James Isaac raises most of his feed crops on his own 193-acre farm which he bought in 1959. The Messlers raise all of their hay and corn for silage. They buy all of their grain with the exception of some oats.

When asked how one so young could afford to buy such a farm, James Isaac is quick to reply. "I paid for the farm with money that I had saved and a loan from the bank at 6 per cent interest," he said, adding that this was the only time he had borrowed money from the bank.

"I paid just $70 an acre for it, so I think I got a good buy; it has a lot of good timber on it."

At the time James Isaac bought the farm, it was badly run down, but he worked hard rebuilding the soil and diminishing erosion through scientific soil and water management. He said the farm was valued at $21,000 when the county recently reappraised it, adding that he paid about $14,000.

Becoming the number one farm youth in America has not been an easy task by any means. It has meant long working hours for James Isaac while other boys his age were participating in sports and tinkering with hot rods. But, this could make little difference with James Isaac since his first love was and still is farming.

Given grade calf . . .

James Isaac got his start in farming 16 years ago when his grandfather gave him a grade calf. This was a small start; however, it was all that was needed to inspire this youth who loves farming and is not afraid of hard work.

With the income from this grade animal, he bought his first registered Holstein heifer in 1951. Through his good management and care the heifer grew into a show champion and is a top producer in his herd today.

James continued to expand his operation by keeping all the heifer calves and by putting all of his earnings back into farming. When he entered Greenback High School in 1955, he started studying vocational agriculture under the instruction of Bruce M. Hinton. The teacher, along with James Isaac's parents, Mr. and Mrs. C. L. Messler, encouraged the youth to start as big as he could and expand as fast as resources would allow. James Isaac did this.

FFA farming program . . .

His first year's farming program was larger than most high school boys would ever dream of undertaking. It included 14 dairy animals, 19 acres in feed crops, 23 acres in pasture, and .67 acre of tobacco. Mr. Messler permitted James Isaac to operate his enterprises on the home farm in exchange for his labor. He and his father share all the dairy expenses equally and split the profits. The father-son team is also in partnership on nearly all of the machinery.

As James Isaac continued in his high school program, his farming operation continued to grow in both scope and quality. A good example of this is the large increase in milk production on the Messler farm. During his first year of high school, DHIA records showed their herd producing an average of 8,363 pounds of milk and 314 pounds of butterfat. The herd is now averaging nearly 11,000 pounds of milk and 400 pounds of butterfat. The young farmer has a 15,000-pound milk and 500-pound fat average as his goal.

One contribution to the herd improvement

PRODUCTION RECORDS are checked by Messler who, the past six years, has increased average production over 2,500 pounds milk.

The authors are members of the department of information, University of Tennessee.

is James Isaac's ability to raise dairy replacements which he considers his "speciality." In fact, he is such an authority on calf raising that he is often called upon by local dairymen to give talks.

When he was asked, "What do you tell these dairymen?", James Isaac's first reply was "Be clean." He recommends keeping the calves in individual pens and keeping the pens and all feed buckets extra clean to prevent scours. Another practice that he follows is treating the calf's navel with iodine at birth.

He has his calf-raising program laid out step by step. James Isaac takes the calf from the cow when she is 2 to 3 days old and moves her to an individual pen in the calf barn. The calf gets warm whole milk from her mother for the next 2 days.

At this age he starts adding water and milk replacer to the whole milk. The whole milk is kept the same, and the water and milk replacer is gradually increased until a total of one gallon is reached.

Hay and grain are kept in front of the calf at all times after it is put in the individual pen. James Isaac gives water to the calves after about 3 weeks of age.

When the heifers are about 3 months old, he starts cutting down gradually on milk in order to shift them over to hay and grain.

Raises on roughage . . .

James Isaac grows his older heifers almost entirely on roughages until about 2 to 3 months before calving at which time they are fed grain with the milking herd.

Although dairying is his main enterprise, James Isaac raises around 100 head of feeder hogs each year, and tobacco is his big cash crop. With these money-making enterprises, he has earned more than $45,000 from his supervised farming program in the past 6 years. In addition to his labor income, he has won $1,403 in prizes on his cattle, hogs and crops; earned $575 working for the U. S. Soil Conservation Service, and $602 from custom work, baling hay and combining grain for other farmers.

With this large farming program, James Isaac still found time to participate in most of the FFA activities that were available. He held two offices in the Greenback FFA chapter and was State FFA Sentinel in 1958-59.

In 1958 young Messler was singled out from the Tennessee Future Farmers as State Star Farmer.

James Isaac's suggestion to the youth starting out in farming is "set your goals at what you think you can reach — reach them and then set your goals still higher — takes a lot of desire to work." He also pointed out that it is important to keep up with the modern day science of agriculture.

In discussing his own goals, he said that he never set his goals to be Star Farmer of America, but to go just as high as he could — and he did. This ambitious youth on the sunny side of 21 has achieved a degree of success in farming that many never achieve in a lifetime of agriculture. **THE END**

World butter marketing agreement considered

On September 12, 1961 a conference of the GATT (General Agreement on Tariffs and Trade) members took place in Geneva, Switzerland, for the purpose of settling the question of butter dumping on the English market. The conference did not get far.

New Zealand and Denmark, supported by Great Britain, asked the other 10 participants to restrict temporarily all butter exports to the United Kingdom. As they put it, this was the only means of preventing the imposition of antidumping duties by the British government.

The British delegate, Sir Edgar Cohen, gave to understand that only if no agreement could be reached would his government take recourse to antidumping import levies. He pleaded for an amicable solution of the dumping problem which would satisfy both the exporting and the importing countries. How this could be accomplished, he did not say.

Dutch farm representatives expressed the opinion that the world butter market would benefit if Britain would join the E.E.C. (European Economic Community). In this connection, the . . . Royal Netherland's Dairy Association pointed out that, in such cases, the English interior market price would reach the continental level and a common duty could then be levied on all imports.

Since the butter exporters of the Commonwealth, Australia, New-Zealand, and possibly Canada would be granted certain preferences, their position would probably improve instead of deteriorate. According to the "Economist," says the Dutch dairy magazine, the butter prices of the Commonwealth countries, within the framework of their respective quotas, would then be allowed to ascend to continental levels.

If Great Britain should join the E.E.C., three great butter producing groups would result: The West-European, the Oceanic, and the North American. In the opinion of the president of the "Landbouwschaap," A. W. Biewenga, these groups should be able to reach common ground for the express purpose of developing a regulated world butter market, not to restrict butter production but to use the surplus to fight hunger wherever it occurs on the globe.

—TRANSLATED FROM AGRA-PRESS BONN, GERMANY

(Latest information received on the subject calls the Geneva conference a flop. The participant countries did not show any inclination whatsoever to reduce exports to Great Britain voluntarily. New Zealand Prime Minister Holyoake said bluntly, "It is neither reasonable nor appropriate to expect New Zealand, who is neither guilty of dumping nor subsidizing exports, to reduce its shipments to the U.K. market."

The executive secretary of the conference has been authorized to call a new meeting at a later date.)

—AMERICAN AGRICULTURAL NEWS DIGEST

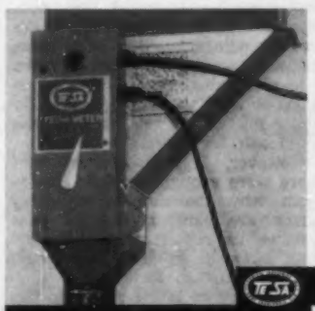
BARNEY FARMLAN

"Dad, here's something you should wear at income tax time."

James Wagoner says . . .

"FEED-O-METERS SAVE ME 7200 LBS. OF PELLET CONCENTRATES A MONTH"

Mr. James Wagoner, widely known Jersey breeder and owner of Rosemont Jersey Farm, Modesto, California is pictured above showing one of his Milk-o-Meter — Feed-o-Meter installations.



"We have an 80-cow herd at Rosemont Jersey Farm. We use 3 Milk-o-Meters and Feed-o-Meters, one for each two stanchions in a six-cow, California style walk-through stanchion barn. By installing Feed-o-Meters I find I am saving 7,200 lbs. of pellets per month or about $250. Furthermore, I find the older cows milking heavier for a longer period than ever before. After changing over to the Meters they certainly milk much faster and cleaner than before. With Milk-o-Meter and Feed-o-Meter it is easy to pick up a cow that is not feeling right as well as to be able to check her production at any time."

See your Dairy Equipment Dealer, or Mail Coupon Today!

TECHNICAL INDUSTRIES, Inc.
2711 S.W. 2nd Avenue
FORT LAUDERDALE, FLORIDA

TI-SA FEED-O-METER HD

Name_____
Address_____
City_____ State_____

Buy From Our Advertisers . . . They Are Reliable.

BRISTOL KOW MATS
"The world's finest" "Guaranteed 10 years"
Thousands of satisfied users all over America are saving hundreds of dollars yearly on bedding and are saving valuable cows from serious injuries. Fifteen sizes for custom-fitting YOUR barn. Write today for nearest supplier to:
BRISTOL KOW MATS, INC. Litchfield, Conn.

PERMASOFT® UDDERSPONGE
Really is the "Uddermost"

Permasoft® Uddersponge is bacteria resistant — won't mildew nor sour. No objectionable odor ever. Can be boiled or placed in any standard sterilant. Won't shred nor crumble. Always soft and flexible, wet or dry. Holds lots more water than rags or paper. Washes and warms the udder quickly, thoroughly. The cow loves it. Upgrades your milk.

Costs less than even paper towels. 35c each, package of 4—8" x 8" uddersponges at your dealer or pospaid for $1.00.

PIPE LINE SPONGE
Always flexible. Extremely durable. For in-place cleaning of 1½" milk pipe lines. Completely removes trapped milk and sediment. At your dealer or postpaid 90 cents each.

SPECIAL BARGAIN
Package of 4 Permasoft Uddersponges and one pipe line sponge. Postpaid $1.75. Write or print address plainly. Send check or cash—no stamps.

ROLL DIPPERS INC., Maumee, O.
Also manufacturers of ice cream dippers and spades since 1935

NEW BENDER SQUATTY AUTOMATIC PIPELINE WASHER

The new low-cost Bender Squatty Washer sterilizes and cleans both single and circuit pipeline milking systems. Gives visual proof of its effectiveness. Easy to install, it utilizes existing vacuum supply. Automatically scrubs the pipeline with a churning Turbo-Action.

Teat Cup Washer
(Mfgd. 1 to 6 Nipples)
For bucket and pipeline milking. Has the same Turbo-Action as the Squatty Washer. Vacuum operated. Automatic. Prolongs the life of rubber goods.

Trol-O-Matic Pipeline Washing
Completely automatic electrical control unit. Rinse, wash and sanitize pipeline with a flick of the switch. Trol-O-Matic allows you to leave the milkhouse while it takes care of pipeline clean-up.

Available at your dealer. Write for free literature.

BENDER MACHINE WORKS
HAYWARD, WISCONSIN

IODOPHOR
GERMICIDAL DETERGENT

FOR UDDER WASHING
AND MASTITIS CONTROL
Safe for Hands and Animal Tissue

Excellent detergency with full powered germicidal action. Destroys infectious bacteria; assists healing. Low pH softens and conditions water. Pre-milking washing with Klenzade Iodophor protects herd — practically eliminates sediment.

ASK YOUR DEALER, OR WRITE
KLENZADE PRODUCTS, INC.
DEPT. 481C BELOIT, WIS.
"Dealer Territories Available in Some Areas."

NO HORNS!
One application of Dr. Naylor's Dehorning Paste on horn button of calves, kids, lambs—and no horns will grow. No cutting, no bleeding. 4 oz. tube—$1.00 at your dealer's, or mailed postpaid.
M. W. NAYLOR CO.
Morris 12, N.Y.
Dr. Naylor's DEHORNING PASTE

Dr. Larson's FLEXIBLE, NON-IRRITATING POLYETHYLENE PLASTIC TEAT TUBES
FOR SORE, INJURED HARD-to-MILK TEATS
Sterilized, ready to use, for any injury of teat that makes normal milking painful or impossible. Tube immobilizes teat orifice, aids healing of injured tissues, won't aggravate wound. Scientifically designed flexible fingers hold tube in teat. Remove cap for milking by machine or hand. Leave tube in teat until healed. No more sore teated kicking cows. At your local veterinary supplier, or order by mail, 3 for $1.00. Write Dept. H.
DR LARSON'S ANIMAL HOSPITAL
FERGUS FALLS, MINNESOTA
3 FOR $1.00

CHANGE & REPAIR TIRES ON THE FARM
with your own LIL-Joe priced at only $39.50. Handles 12 to 20 inch drop center wheels of car, light truck and implements. Complete instructions with shipment. If your implement dealer or farm store does not have them order direct from
LIL-Joe
CASCO, WISCONSIN

BAG BALM Teat DILATORS
HEAL TEATS FAST!
Bag Balm Dilators used by leading veterinarians. Fast, medicated relief for teat troubles. Holds teat correctly in shape between milkings. 25 packed in soothing Bag Balm ointment Super-flexible; no wires, no wood. Will not snag, come apart. At Dealers FREE COW BOOK: "Care and Feeding of Dairy Cattle" Write
DAIRY ASSOCIATION CO., Lyndonville 21, Vt.

Feeding

by J. K. Loosli

Dairy feeding problems in Hawaii

The islands have a nearly perfect climate, but land and feed prices are problems for dairymen. Pineapple silage is becoming a popular roughage.

THE writer was privileged recently to spend two weeks in Hawaii, our 50th state, to attend a scientific conference on animal production. Opportunity was provided to visit some of the dairy farms on the island of Oahu.

Some of these farms used to be near Honolulu, but housing developments and commercial land uses accompanied by fabulously high land prices have forced livestock production to the rural areas, similar to the relocations that we have seen here on the mainland.

To most dairymen in North America who are now starting winter feeding it would seem perfect to have a climate where crops grow 12 months each year, such as is true for Hawaii. When I learned, also, that dairymen receive about $9 per 100 pounds for milk, I couldn't see how anyone could ask for more.

However, I soon learned that there were enough problems to explain why the number of dairy farms are limited. Hawaii does produce its requirements for fluid milk, but ships in cheese, ice cream products, and so forth.

According to latest available figures the average cow in Honolulu produces about 8,500 pounds of 3.5 per cent milk yearly. Half of the cost of producing milk is for feed. The remainder represents overhead costs including labor, housing, interest, and other items. The overhead costs remain about the same regardless of production level.

Because of high land prices and a lack of available land, forage production is probably one of the biggest problems Hawaiian dairymen face. The farms we visited had limited amounts of alfalfa hay or pellets, which had been imported from California.

Two of the farms used alfalfa or Napier grass as fresh cut forage. Sugar cane tops or strippings are sometimes fed. Two farms were feeding pineapple plant silage as the main source of forage.

Pineapple silage . . .

Pineapple plant silage is a relatively new feed for cattle. Cooperative studies at the University of Hawaii and the Pineapple Research Institute have shown the ensiled pineapple plant had a TDN value of 61 per cent on a dry basis, which is equal to the best hay.

This material can be fed as the primary or sole source of roughage with good results. It should make it less important to import alfalfa from the mainland, which usually costs about $65 per ton in Honolulu. Pineapple plant silage is low in protein, but this can be corrected easily by more protein or urea in the concentrate mixture.

Large commercial silos make pineapple plant silage available throughout the year. It must be hauled by each dairyman, but this is also true for other feeds. Much more of this feed could be produced and used than is now the case. With shipping problems this is almost certain to be the coming trend in feeding.

Pasture is not used to any appreciable extent on most dairies. In some cases heifers are provided with pasture. However, most of the dairies raise very few of their replacement heifers, but prefer to buy them from the west coast.

Feeding calves and heifers . . .

Because of high fluid milk prices most heifer calves in Hawaii are fed milk replacers. We saw some nicely started heifers of the Holstein and Guernsey breeds.

Heifers are usually fed in dry lot on limited forage and relatively heavy on concentrate mixtures, including dried pineapple bran or pulp. This latter feed is a bulky concentrate containing less than 1 per cent of digestible protein and about 64 per cent of TDN. It reminds one of citrus pulp or beet pulp. Molasses also may be fed liberally to heifers and dry cows.

Several dairymen told us that they prefer to buy imported heifers from the west coast than to grow their own. The imported heifers were larger in frame and developed into better producing cows. Only one farm said that locally bred and produced heifers were usually better producers than imported ones. This farm had more pasture for the heifers.

Feeds for cows . . .

Except for dried pineapple bran or pulp and cane molasses, the high energy concentrates are shipped into Hawaii. Some of our national brands of commercial feeds are available. There is at least one feed manufacturing plant in Honolulu that brings in feed ingredients and mixes whatever the dairyman orders.

Most dairymen seemed to prefer a 20 per cent protein concentrate rather than one with 16 per cent protein, as is most common in the other states.

Cereal grains are not grown on the islands. Barley, corn, and wheat mixed feed (millrun) seemed to be most widely available. Copra meal was generally used with corn gluten feed, cottonseed meal, or soybean meal for extra protein.

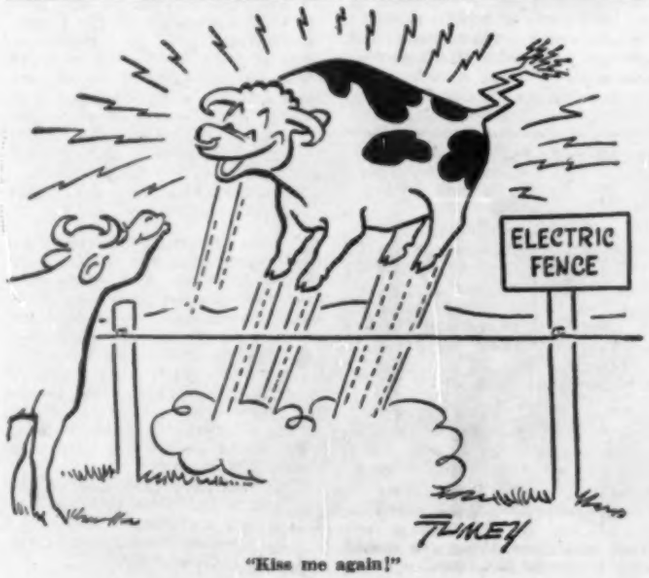
All of the dairy herds we visited had some Guernsey or Jersey cows along with larger numbers of Holsteins. There were some registered purebred cattle, but grades were most common. The view was expressed that Holsteins could not always be depended upon to produce milk high enough in fat content to meet the market regulations with limited roughage, heavy concentrate feeding and the rather uniformly warm weather.

All of the cattle were in good condition, showing evidence of good feeding practices. The farms were all well managed and showed every evidence of being as good as the better ones on the mainland.

Other problems . . .

Housing problems for dairy cattle are not important in Hawaii. Open yards with feed bunks and water supply will suffice, since the weather is never cold. Shades reduce heat stress from the hot sun, but it is not extremely hot and uncomfortable except when the trade winds do not blow, which is very seldom. Temperatures are mostly in the 70's or low 80's.

My impression was that it would not be easy for young dairymen to start up a farm in Hawaii.



"Kiss me again!"

Swine

by Fred J. Giesler

Questions from the readers

Hogs following cattle may net an extra $6 per steer. If some of your sows don't have enough milk, check these possible causes.

EACH year questions are asked regarding the use of feeder pigs as a part of the cattle feeding operation. Cattle feeders are interested in how much extra money feeder pigs contribute to cattle feeding operations, if any.

Experiment stations have found that with a typical yearling cattle feeding program, using shelled corn in the ration and hogs following the cattle, a pound of pork can be produced for each bushel of corn consumed by the steer.

That would mean that if a cattle feeder finishes a steer on 50 bushels of shelled corn he can also market an additional 50 pounds of pork for each steer he feeds. Figuring this on the basis of 16-cent hogs and allowing $2 per pig for protein and other costs, the cattle feeder can net an extra $6 for each steer he markets.

Studies made recently at Iowa indicate that as much as 21 per cent of high moisture shelled corn (35 per cent) went through the cattle undigested.

The way to get around this loss is to have hogs in the feed lot or to grind the corn before feeding.

The number of pigs it takes to follow steers in a feed lot depends a great deal on the kind of feed you use and the age of the cattle being fed. When you feed a yearling on ground ear corn, figure about one pig for every four steers. However, when shelled corn is fed to cattle, two steers will usually support one pig. As a rule, 2-year-old cattle will support a few more pigs while young calves a few less.

Your own management will play an important part in the success of this kind of operation because, if it looks as though your pigs aren't gaining quite as much as they should, you may have to feed them a little extra grain.

On the other hand, if you feed them too much they won't get out and clean up feed that the cattle have wasted. Feeder pigs weighing more than 50 pounds work out best for following cattle.

Regardless of whether or not you furnish the pigs extra grain, be sure to give them about ½ pound protein supplement per day. Also, provide the pigs with a comfortable place to sleep and a good supply of clean drinking water.

Some sows don't milk . . .

Improper feeding, either before or after farrowing, can cause the sow to become sick. Rations deficient in protein will often cause a drop in milk production.

Another cause of sows not producing milk is too little water. Sows that do not have a clean water supply prior to farrowing or immediately afterwards often will become constipated, resulting in toxemia. Sometimes the sow will not drink enough water even when it is available. This is especially true when only cold water is available during the winter months.

Lack of exercise . . .

Lack of exercise also results in constipation and toxemia at the same time that the unborn pigs are being deprived of an adequate amount of oxygen. This, too, is common in cold weather.

Chilling often follows exposure to storm or confinement in cold, wet, dirty and drafty quarters. Sows in these conditions must warm their bodies before they can expend energy for milk production.

Hormone upset . . .

Milk production and reproduction are closely related. These physical functions stimulate a secretion of certain hormones which have exactly opposite effects. Too much of one hormone may cause too little of another to be secreted. This means that milk production can be completely stopped.

Milk fever also a cause . . .

While milk fever might be included under improper feeding or a non-contagious disease, it is an ailment that prevents milk flow.

Knowing that all these adverse conditions can be tremendously costly, steps should be taken to follow good management practices that could prevent a great many causes of lack of milk in sows. These good management practices might be listed as follows:

- Feed your pregnant sows well balanced rations so they remain in good condition without becoming too fat during the pregnant period.
- Supply salt and minerals to sows in the ration or free-choice.
- Make a ration a little more laxative at farrowing time by adding a bulky feed like bran to the sow ration for three or four days before and after farrowing.
- Keep a supply of fresh, clean water available at all times.
- Make sure your sows get exercise during cold weather.
- Keep your sows in clean, well-bedded quarters that are warm and free from drafts.
- Don't breed back sows that have attacks of mastitis.
- Eliminate high door sills to avoid bruising the udder.

She: "What's the difference between dancing and marching?"

He: "I don't know."

She: "I didn't think you did. Let's sit down."

Sell every drop of your milk

Whole milk is worth money. Sell it after the fourth day of freshening. Simply switch your calves to Land O'Lakes Calf Milk Replacer.

Calves cannot digest cereals efficiently during their first few weeks of life, as proved at Anoka Research Farm and in tests conducted by universities across the nation. This is why there are no cereals in Land O'Lakes Calf Milk Replacer. It's a milk product. Land O'Lakes has added vitamins, trace minerals and antibiotics, with 10% added fat for 22% extra calories. Our supplies of this product are fresh, so come in today.

—from the nation's leading calf nutrition research plant, Anoka Research Farms

FEED TEST 6E CERTIFIED

Land O'Lakes CALF MILK Replacer

KICKING COWS "GENTLED" INSTANTLY!

ONLY $14.95 PPD

• Make more money milking than selling her! Amazing new Easier Cattle Gentl-izer safely quiets toughest cow in your herd with gentle pressure that prevents cow from moving its hind legs. Easy to put on, no chains, no danger, no injury. Safe, sanitary. Thousands in use. Try 10 days at our risk on money-back guarantee. Specify breed and size when ordering. Only $14.95 ppd. ($15.95 west of the Rockies). U.S. Pat. 2655900; Canadian Pat. Pend.

PRIDE HYBRID INC. (DEALERS AND AGENTS WANTED) Dept. HD-112 GLEN HAVEN, WIS.

FOR MINOR CUTS—WOUNDS CRACKED TEATS—CHAPPING

Udderly Perfect CORONA OINTMENT IT'S LANTISEPTIC!

RICH SOFTENING SOOTHING HEALP!

WORK CLOTHES - COVERALLS

SAVE 75% OF ORIGINAL COST

Coveralls	$1.89
shopcoats, white only, 36-46	1.50
Matching pants and shirts	1.50
Pants only	1.00
Shirts only	.50
Heavy Twill pants, Sizes 30-42	1.50
Matching Gabardine-Like pants and shirts	2.00
Gabardine-like pants only	1.25
Gabardine-like shirts only	.75
Lined twill jackets (36-42)	2.89

Add 50c for postage, handling. No COD. All sizes. Colors — White, Tan, Grey, Blue, Green. Used. Professionally laundered. Satisfaction guaranteed.

PLYMOUTH SURPLUS SALES

P.O. Box 385 Dept. H Gloversville, N.Y.

Buy More U. S. Savings Bonds.

Wintertime protection for your dairy herd

KILL Lice WITH COOPER DRI-KIL

You know by the time you find lice on your cows they have already caused you serious damage. Winter gives lice an open season on heavy-coated dairy herds. Stop 'em FAST and economically with Cooper DRI-KIL! You'll keep milk production up with happier, louse-free cows. Cooper DRI-KIL comes in a handy, 2-pound, sifter-top can—also in bulk 10 lb. and 25 lb. pails. It's harmless to animals and humans—but it's sure, fast death to lice. At your animal health dealer's.

Ask your dealer for free Bulletin or write

COOPER DEPENDABLE PRODUCTS

WILLIAM COOPER & NEPHEWS, INC., 1909 N. Clifton, Chicago 14, Ill.

"THE CIRCLE OF PROTECTION FOR YOUR LIVESTOCK PROFITS."

Now...win the fight against calf scours and pneumonia

HESS & CLARK

2-way tabs

Sulfathiazole
Streptomycin
double trouble for disease . . . fights both infections at the same time

Calf Scour Tabs — a two-way attack against calf scours and pneumonia: (1) sulfathiazole to combat infection in the intestinal tract and in the blood (2) streptomycin to combat a wide variety of bacterial organisms in the intestinal tract. Also contains Kaolin to protect and soothe intestinal lining . . . help remove poisonous toxins from the system. Easy-to-use tablet form. No mixing or drenching necessary. Each card contains four 7-gram tablets . . . enough to treat one scouring calf. Also available in *NEW* 50-tab jar.

HESS & CLARK
ASHLAND, OHIO
Division of Richardson-Merrell Inc.
AH-32

MILK RECORD SHEETS, HERD BOOKS

Record keeping is easy when you use Hoard's Dairyman milk record sheets and herd books . . . Send for samples . . . No obligation

HOARD'S DAIRYMAN FORT ATKINSON, WISCONSIN

Master Saver FEEDER

COW FEEDER
(Feeds 24 Head)

FOR HAY OR ENSILAGE
Model #15 $89.50
15 Ft. Long

- PERMANENT
- ALL-METAL CONSTRUCTION
- CUTS YOUR FEED COST

CALF FEEDER
(Feeds 18 Head)
Model #10 $59.50
8' 2" Long

Price includes Freight to all parts of U.S.A. except east of Rockies. Slightly higher elsewhere.

Write for free illustrated folder

CENTRAL STATES SALES CO.
P. O. BOX 10222 DALLAS, TEXAS

NEW 5lb. PAIL $6.90

10 oz. $1.00

BAG BALM

Fast Medicated
HEALING FOR TEATS and UDDERS
Discourages Face Flies

BAG BALM for *FAST* healing! Modern, medicated, smooth-spreading teat and udder ointment for injuries, chapping; beneficial massage of caked bag. Loaded with Lanolin!

DISCOURAGES FACE FLIES, absolutely safe. At dealers. Write FREE *"Care and Feeding of Dairy Cattle"*.

DAIRY ASSOCIATION COMPANY
Lyndonville 48, Vermont

Handy Hints

CONSTRUCT PORTABLE GAS TANKS FROM CAR FRAMES

The framework for our gas storage tanks was made from four car frames welded together. At the bottom, we welded two 6-inch pipes for skids which make it possible to move the tanks to any point in the yard or skid them to the field where our tractors are operating.

The entire unit is painted aluminum and in hot weather we park it in the shade to cut down evaporation losses.

Kansas CHARLES LEIS

METAL FEED BUNK CUTS WASTE OF HAY

For our metal feed bunk, we used ½-inch steel rods welded to a 2-inch steel pipe at the top and set in concrete below. One of the small rods is perpendicular and the other two are set at an angle which forms the V through which the cows feed. This leaves an opening 18 inches from top to bottom with an 18-inch opening at the top. There is very little wasted hay with this feed bunk and it is a permanent and long-lasting piece of equipment.

Kansas R. AND O. SCHMIDT

Cold weather starting aids

(Continued from page 1154)

contains a thermostat to prevent overheating. Additionally, it will maintain the cooling-system temperature even if it tends to drop because of light load while the engine is operating.

Try volatile fuel . . .

In the use of volatile fuels, some form of ether is introduced into the cylinders. However, there is a variety of methods available.

For most satisfactory operation the ether must be introduced into the air intake in an atomized or vaporized form. Additionally, in very cold-weather starts, the fluid must be continued for several seconds during "warm up," or the engine may die.

The use of liquid ether by pouring it into the manifold from a can or from a gelatin capsule has several disadvantages. It's difficult to control the amount used, and the ether is not broken up into small particles. The extreme volatility of the ether also presents a fire hazard.

The aerosol-spray container helps overcome these difficulties. In its most simple form the spray can is hand-held and operated. However, this arrangement requires a second person to operate the starting controls.

While engine is being cranked, the ether is sprayed into the air pre-cleaner, directly into the carburetor, or into an opening in the intake manifold. After the engine starts, just enough ether is used to keep it running while warming up. Excess ether will produce high pressures in the cylinders and may lead to damaged pistons or rings.

A slightly more elaborate installation reduces the fire hazards and permits operation by one person. The pressurized container is mounted on the firewall or other convenient structure; a tube is used to carry the ether to the intake manifold, and a flexible-cable control permits the driver to operate the dispenser while cranking the engine.

The permanent installation is also available in a version which uses a non-pressurized can of ether. When the driver pulls the control knob, he operates a plunger which pumps the ether into the intake manifold.

Conclusion . . .

Obviously, you will not need all these different type aids on one engine. Often, the one selected depends upon the lowest temperatures in your area. Another consideration is the availability of high-line power for operation of the heating devices. In any case, with adequate planning and preparation, you'll be able to get your engine started, no matter how cold the weather. **THE END**

A teacher called for brief essays on "the funniest thing I ever saw." One boy got through several minutes before the others, and the teacher asked to see his essay. On his paper he had written, "The funniest thing I ever saw was too funny for words."

Records are to use!

(Continued from page 1149)

native which offers the possibility of a net return of 50 per cent, this will enhance the net income by $250 ($500 x 50% = $250).

I met another farmer some time ago who also was dissatisfied with his farming progress. His major enterprise being a dairy herd, we inspected the record of performance of the herd.

Most everyone selling milk has a ready-made record of physical milk production in the monthly or semimonthly statements prepared by the plant receiving the milk. This farmer had all these statements and, after making an allowance for milk used by the family and that fed to calves, we arrived at the total production.

From this we could figure the average milk production per cow and, by applying the average butterfat test, the average butterfat production per cow. It turned out to be 240 pounds, which is considerably below even the Wisconsin average.

The farmer was quite shocked at such evidence. He now had a better understanding of why his income was rather low. He also had several ideas on altering his plans. These included individual cow testing, close inspection of his feeding program, and so forth. So, again, by analyzing the record, he was able to do more constructive and intelligent planning.

I shall never forget his comment to the effect that he had "discovered in 15 minutes what a lifetime of hard physical work would not reveal."

Time is not "spent" . . .

It reminded me of a statement I had heard. "Time is not spent in record keeping, analysis, and planning — **it is invested!**"

I suppose at least one reason why farmers do not apply this procedure more widely is the fact that results of this recording, analysis, and planning are not immediately obvious in terms of something they can measure physically.

A farmer is constantly working with physical things. When he gets on the tractor to plow, he can see and measure the immediate results. The same thing applies to constructing a building, mowing hay, milking cows.

But when it comes to such things as analyzing records to do a better job in planning, the results are not as obvious, in physical terms at least, nor as immediate. This should not lead us to the false conclusion, therefore, that this is worthless activity.

Cost records not enough . . .

Some people apparently hold the idea it is sufficient to keep only cost records. In other words, they seem satisfied to know where their money goes. Granted, this may be interesting information, but it is not very helpful until it is associated with production and income received from specific cost items.

Unless we measure and record the "outputs" (in terms of physical production or income), we will never know whether the "inputs" (costs of production) are actually being devoted to these areas that promise the greatest net return or satisfaction. Unless we know both sides (inputs and outputs), we cannot appraise intelligently the results. Consequently, we have no basis for making profitable changes in our plans.

The traditional emphasis on financial records stems from two sources: (1) They are required for tax reporting, tenant-landlord settling of accounts, and so forth, and (2) this is the emphasis in the records kept by business firms.

Several major differences between farming and industry, however, indicate the need for emphasing different things in the records kept by these two types of businesses.

Industrial firms emphasize financial records since the physical relationships between inputs and outputs are much more uniform and standardized. Financial records are of key significance since business firms generally set their own prices (called administered prices) and frequently negotiate over their costs.

In farming, the opposite holds. Individual farmers take prices and costs as given in the market place. They have no measure of control over them. In production, on the other hand, they work with unstandardized biological organisms and processes. Each cow has a unique capacity and will react differently from any other cow to feed and other factors in her environment. The same is true with crops on different fields and under differing weather conditions.

Thus, the farmer must be especially concerned with physical production records. While financial records are obviously important, physical production records hold the greater promise for indicating the most profitable investment possibilities.

Help is available . . .

It may take some learning and extra effort to get started in keeping and using your farm records. But there are a number of places you can go for help.

First, there may be a private farm management service operating in your area. If so, this service can be obtained for a fee. Or perhaps one of the cooperative farm management associations, which are organized in many states under sponsorship of the college of agriculture, is available to you. Again, for a certain fee, you can get help from such an association fieldman.

Second, the county agent or someone on his staff may be able to help. Many county extension programs include "farm and home development" assistance in which case the educational services of one full-time agent are available for help in analyzing your business.

Finally, a large number of vocational agriculture teachers in the high schools hold evening classes for adult farmers during the fall and winter months. Inquire about such classes and suggest several sessions on the use of farm records and farm planning.

Record keeping, analysis, and planning will pay handsome profits to every farmer willing to invest the time. The important thing is to keep the right kind of record, physical production records as well as financial.

As the record develops, it should be studied and analyzed. The "facts" of the record must be interpreted. Such interpretation will show how well our time and investments are paying off.

Where are the best paying alternatives for our limited investment dollars? This question can only be answered by analyzing the record.

On the basis of this analysis, plans can be made for improvement in the year(s) ahead. Time is not spent in record keeping, analysis, and planning, **it is invested!** And the dividends are high.

THE END

HOARD'S DAIRYMAN

Christmas Gift Subscriptions

— Now At Reduced Prices —

HOARD'S DAIRYMAN, the National Dairy Farm Magazine, is the "only one of its kind." It's truly different in that all of the more than 2000 helpful dairy farm ideas each year are practical, profitable and tested. A gift any dairyman and his family will appreciate, enjoy and use. Truly a "Lasting Gift."

ORDER BLANK

HOARD'S DAIRYMAN

FORT ATKINSON, WISCONSIN

Enter the following subscriptions for which $_____ is enclosed.*

Name _____

Post Office _____ State _____

R. F. D. No. _____ No. Years _____*

Name _____

Post Office _____ State _____

R. F. D. No. _____ No. Years _____*

Name _____

Post Office _____ State _____

R. F. D. No. _____ No. Years _____*

★ "WRITE YOUR NAME BELOW AND WE'LL SEND A GIFT CARD IN YOUR NAME."

Sender's Name _____

Post Office _____

R. F. D. No. _____ State _____

Gift Subscription Rates

U.S.A. ONLY

ONE 3-Year Gift $2.00 — TWO 3 Year Gifts $3.50 — THREE 3 Year Gifts $5.00

(Regular Prices—$1.00 Year - 3 Years $2.00 - 5 Years $3.00)

Hoard's Dairyman

FORT ATKINSON, WISCONSIN

Special Opportunities

— Where Buyer and Seller Meet —

The rate for advertising in this department is 25 cents per word per insertion, except for "help wanted" and "position wanted" advertising which is only 20 cents per word per insertion. Count address. "J. W. Foley, Route 13, Green Bay, Minnesota," is considered as eight words. Blind advertisements must be signed: "BOX 2, care Hoard's Dairyman, Fort Atkinson, Wisconsin" and count as 3 additional words. Count each initial or group of figures as a word. SEND CASH OR CHECK WITH ORDER. Copy must reach us one month ahead of date of issue. NEW ADVERTISER MUST FURNISH REFERENCES. Send order to HOARD'S DAIRYMAN, Fort Atkinson, Wisconsin. Different rate for Livestock Display advertising.

STOCKMEN'S SUPPLIES

NEW! Now treat Mastitis for less than 21c with new Uni-Power infusion! Each dose contains: 100,000 units Procaine Penicillin, 100 mg. Dihydrostretomycin, 100 mg. Neomycin, 750 mg. Sulfathiazole, 750 mg. Sulfamerazine, 5 mg. Cobalt. Infuse directly into the infected quarter by withdrawing 10cc (1 dose) into syringe with a needle, then replace needle with an infusion tube. Also ideal when drying off a cow—infuse 10cc of Uni-Power into each quarter—allow to remain until the cow freshens. "An ounce of prevention is worth pounds of milk." Recommended by leading veterinarians and dairy experts. Per 100cc bottle (10 doses) $2.35. Six bottles $2.25 each. Order 12 for $25.00 and receive free a syringe, needle and infusion tube. At your Anchor Of New England dealers or order direct from ANCHOR SERUM COMPANY OF NEW ENGLAND, Dept. W-4, Topsfield, Massachusetts. Write for free veterinary supply catalogue and health guide. (Please note: As always, milk should be withheld from human consumption 72 hours after the last treatment.) 9-*

ARTIFICIAL breeding equipment. Largest, most complete line. Write for free catalog. NASCO, Fort Atkinson, Wisconsin. 1-*

ARTIFICIAL INSEMINATION equipment. World's leading supplier. Write for free catalog. INSEMIKIT COMPANY, INC., Baraboo, Wisconsin. 2-*

MASTITIS TESTERS. Send for free sample and literature. LABAY, INC., Pataskala, Ohio. 11-*

BIG SAVINGS on drugs, vaccines and supplies for all livestock. Free catalog. VETSCO, Box 6505, Minneapolis, Minnesota. 23-*

SEND CARD for free wholesale catalogue of veterinary supplies and equipment. EASTERN STATES SERUM COMPANY, 1727 Harden Street, Columbia, S. C. 2-33

VETERINARY SUPPLIES (wholesale) free catalog. WESTERN LIVESTOCK SUPPLY, Box 56, Delta, Colorado. 3-*

SPECIAL MASTITIS OINTMENT. (Procaine Penicillin 100,000 units. Dihydrostreptomycin 100 mg., 10% Sulfamerazine, Sulfathiazole Cobalt 5MG., in sesame oil base disposable syringe). Dozen $4.50 prepaid. (Pen-Fu $9.00 dozen syringes). Withheld milk from treated quarter for 72 hours. Quantity savings. KENSINGTON VETERINARY AND POULTRY SUPPLY, Kensington, Connecticut. 6-*

VETERINARY PRODUCTS direct to you at a savings. Write for free price list. UFCO, 306 Cherokee, Dept. Z, St. Joseph, Mo. 10-*

GORDON'S MASTITIS REMEDY. Contains penicillin G, streptomycin, neomycin, sulfathiazole and cobalt. Easy to use. Insert the contents of the tube in the udder Warning: Milk taken from the cow within 72 hours after the last treatment for mastitis must not be used for human consumption. Special $3.25 a dozen postpaid. W. G. BINNERT, Cortland, New York. 21-10

ACETONEMIA (KETOSIS) remedy. After five years research and testing, Koe Kure is sure, fast cure for Ketosis now available. Don't lose valuable milk and cows. Easily administered drench, shipped in unbreakable polethylene jug, complete treatment for two severe cases. Results in 24 hours. Koe Kure half price limited introductory offer, $6.85 prepaid. Preventative program included. Satisfaction guaranteed or money refunded. Emergency phone ULgrave 5-3212. THOMAS LABORATORIES, Dickerson Road, Lansdale, Pennsylvania. 23-3

SAVE DOLLARS, cow trainers, barn liners, gutter guards. Barn equipment dealers needed. ROTH MANUFACTURING, Loyal, Wisconsin. 23-2

LATEST VETERINARY MEDICAL GUIDE by veterinarian describes diseases, conditions, 25c refundable with order. Save dollars ARF (R), farm-proved drugs, vaccines, instruments. AMERICAN RESEARCH FARMS, CV, Lenexa, Kansas.

CATTLE MARKERS

ALL-NYLON — NO PAINT to chip out. Many colors. Free catalog. CREUTZBURG & SON, Malvern, Pennsylvania. 10-*

LARGEST, most complete line of cattle markers and livestock supplies. Free catalog. NASCO, Fort Atkinson, Wisconsin. 14-*

DAISY CATTLE MARKERS, solid brass tag and brass-plated chain for horns or neck. Write for free catalog. GOLDEN ARROW FARMS, Dept. C, Huntington, Indiana. 10-*

E-Z REDD Flex-nylon cattle tags give you superior quality at an economical price for fast, accurate identification of your herd. Permanently numbered — no paint to chip or peel! Seven bright, legible color combinations! Also, neck chains and fasteners. Write for free agricultural supply catalog of livestock equipment, dairymen's supplies, A. I. equipment, riding equipment and show season supplies—hundreds of farm items for easy mail-order delivery. INSEMIKIT COMPANY, INC., Baraboo 2, Wisconsin. 22-*

CATTLE EARTAGS legible 50 ft., chains, nylon rope sets, anklets. Samples. Nearest dealer. BOCK, INC., Mattoon, Ill. 3-spl.

SILOS

P & D SILO UNLOADERS: Greater capacity and more trouble free operation. Feed 200 head in 10 minutes. The only silo unloader on the market sold on a 30 day money back trial under a $75,000 guarantee bond. Also heavy duty auger bunk and tube feeders. Dealerships available in some areas. P & D SALES & MANUFACTURING COMPANY, Plainfield 6, Illinois. 21-*

SILOS

FREE new Lincoln farm welder with each Forage Saver glass-lined silo ordered before December 31, 1961 for immediate spring delivery. See your dealer or write: SHERROD SILO SALES, INCORPORATED, Strawberry Plains, Tennessee. 22-3

SUNFLOWER TRENCH SILO unloader, slightly used, 10 foot reach. Excellent condition. $1,500 delivered. SHERROD SILO SALES, INCORPORATED, Strawberry Plains, Tenn. 22-2

GLASS-LINED FORAGE SAVER silo. Put a big blue Forage Saver to work on your farm. Forage server automatic bunk feeder and Silo-Save ensilage preservative. Some choice dealerships available. SHERROD SILO SALES, INCORPORATED, Strawberry Plains, Tenn. 23-*

FEED SILAGE FASTER at a lower cost with a Van Dale silo unloader. Two models to meet every need. Compare these quality, patented features: Double augers remove more silage per hour. 3-point suspension keeps unloader level. V-paddle impeller throws (not blows) silage. Adjustable drive gives positive traction. Double wall cleaners shave frozen silage and ice cleanly from silo wall. Write for free brochure. (Dealer inquiries invited). VAN DALE, INC., Box 73, Wayzata, Minnesota. 15-*

FARM EQUIPMENT

SAVE 40%. Hydraulic manure loaders. VAUGHN MANUFACTURING, Waseca, Minnesota. 4-*

DEPRESSION PRICES, WE SELL CHEAP, save 75% off new and used tractor parts, crawlers, wheel tractors. 190 makes, models. Catalog ready. Send 25c SURPLUS TRACTOR PARTS CORP., Fargo, N. D. 17-12

TWO USED CATTLE TRAILERS, one Frueheauf 1951 34' single axle, one 1958 Chamberlain 40' tandem with West Coast setting. Full panels for both. OAKWOOD STOCK FARM, Route 4, Watertown, Wisconsin. 22-2

DAIRY EQUIPMENT

BARGAINS: Farm tanks, sizes 100 through 500. Tell me what you need. Used and new units. BOX 949, Joliet, Illinois. 20-4

USED DELAVAL BULK COOLER, 500 gallon, 5 unit Combo pipeline milker. 3 year old Holstein bull, dam 2 year old butterfat record 726, 10 crosses to Wis Admiral Burke Lad. ALBERT BAY, Route 2, La Junta, Colorado.

WANTED: Used milk coolers, side doors or top openers. SOUTH SIDE TEXACO, Mora, Minnesota.

HAY AND BEDDING

GRADED DAIRY ALFALFA and other grades hay. ART CALLARI HAY COMPANY, Upper Sandusky, Ohio. 18-*

DIRECT SHIPPER HAY, alfalfa pellets, complete dairy pellets. SCHWAB BROS. MILLS, INC., New Bavaria, Ohio. 17-*

DAIRY CUT — Bright green Colorado coarse chopped steamed alfalfa under patented process — practically no dust — alfalfa leaf intact. 30-ton shipments only — great milk producer. Samples and prices: NEUMOND, INC., 5100 Oakland, St. Louis, Missouri. 19-10

DAIRY HAY, carloads only. Alfalfa, clover and mixed. Ask for delivered prices. HARRY GATES, Jackson, Michigan. 21-6

AUCTIONEER SCHOOLS

LEARN AUCTIONEERING, terms, soon. Free catalog. REISCH AUCTION SCHOOL, Mason City, Iowa. 23-*

LEARN AUCTIONEERING. Free catalog! MISSOURI AUCTION SCHOOL, 1330 Linwood, Kansas City 9-X22, Missouri. 16-*

BUSINESS OPPORTUNITIES

EARN MONEY raising fishworms for us! Exciting details free! OAKHAVEN-24, Cedar Hill, Texas. 23-*

SECOND INCOME from oil can end your toil! Free book and oilfield maps! NATIONAL PETROLEUM, Pan American Building, Miami, Florida. 15-spl.

FARMS WANTED

MORE DAIRY FARMS needed to sell. Extreme Northern Illinois, Southern Wisconsin. H. E. GILBERT, Realtor & Associates, Elkhorn, Wisconsin. (Over 20 years successful experience at your service.) 6-*

WANTED TO CASH RENT, modern dairy farm in Wisconsin. Will consider buying personal. JONATHAN VIETZ, 5341 Stockwell, Lincoln 6, Nebraska.

FARMS FOR SALE

100 WISCONSIN FARMS, all sizes, mostly with personal. STUART'S REALTY, Abbotsford, Wisconsin. 14-10

VIRGINIA livestock, dairy farms and country estates. P. M. BROWNING, Realtor, John H. Hitt, Associate, Culpeper, Virginia. 12-*

ARKANSAS—Mild climate. Rich farms, ranches, dairies. Retirement homes. Beautiful lakefront lots, acreage. Bargains. JIM TUCKER, Rogers, Arkansas. 23-2

SOUTHWEST MISSOURI dairy farms for sale. Excellent market plus climate. Write or call MOON REALTORS UN 5-6633, 315 East Walnut, Springfield, Missouri. 22-2

FARMS FOR SALE

STROUT'S FREE CATALOG! Winter issue! Over 3,900 properties in 36 states and Bermuda. Farms, homes, businesses . . . nearly 3 times as many descriptions and pictures, and twice as many states as any other real estate catalog! 61 years of dedicated service. STROUT REALTY, 7-AU South Dearborn, Chicago 3, Illinois. 21-5

GOOD SOUND WISCONSIN farms. Pfister Farm Agency, BERT PFISTER, Mt. Horeb, Wisconsin. 15-*

ONE OF WISCONSIN'S largest Grade A dairy farms complete, will trade. Information. POWELL'S REALTY, Viroqua, Wisconsin.

112-ACRE DAIRY FARM. Barn has 41 stanchions. 31 head milk cows. All equipment. Pasteurizing and homogenizing plant on farm. Doing a good and growing jug milk business. RALPH NEWMAN, R. D. 3, Uniontown, Pennsylvania.

BUILDINGS ALONE WORTH PRICE. Terrific buy on 160-acre Minnesota dairy on market for only $22,500 with 26 Holstein cows, 2 heifers, 2 large milkers, tractor and full line equipment included! 75 tillable acres, pasture for 40 head, 75 acres tame hay. Estimated $1,000 worth marketable timber. Good 8-room 3-bedroom house. Two barns, other buildings. On county road, 7 miles town. Take over for $22,500 complete. Only $6,500 down. Big free illustrated fall-winter catalog, bargains coast to coast! UNITED FARM AGENCY, 1304-HD Consumers Building, 220 South State Street, Chicago 4, Ill.

257-ACRE DAIRY FARM. Parlor type barn. Good out buildings. House modern. Ten months grazing. One hundred seventy nine dollars per acre. FELT CHAFFIN, Route 2, Campbell, Texas.

CENTRAL WISCONSIN dairy farms: 200-acre farm, good land, barn 36x106 with steel stanchions, 12x40 tile silo with roof, machine shed, chicken house, 2-car garage, 5-bedroom home, complete bath and automatic heat. 40-head Holstein cattle, good line of machinery including Case-O-Matic 400 tractor. Terms available. Other farms and business properties. Send for our free catalog. STEVENS AGENCY, Spencer, Wisconsin. Phone OLiver 9-2291. 23-2

160-ACRE FARM complete with machinery, 51 head cattle, feed. Barn: 36x70, silo: 12x42, machine shed: 30x104; 4-bedroom home. Beautiful layout on blacktop. $39,500. Request full details. DAIRYLAND REALTY, Abbotsford, Wisconsin.

328-ACRE DAIRY FARM by owner. 43 stanchions, 3 silos, barn cleaner, cement barn yard, 2 houses, excellent soil, on pavement. RUSSELL WOODARD, Oliver Street, Owosso, Michigan. 23-2

SPECIAL CENTRAL WISCONSIN dairy farm. 120 acres. 130 cultivated. Steel equipped barn. Cleaner. Large home. Other buildings. $19,500. Terms. Possession April 1962. Other farms with personal. PALMER VINGER REALTY, Since 1922, Greenwood, Wis. 23-6

160-ACRE DAIRY FARM, 140 open, large gently sloping fields. New milk house and barn, silo, machine shed. For particulars write CLARENCE RAUCHFUSS, Dorchester, Wisconsin.

DAIRYING IN OREGON promising. Completely unbias confidential counseling free. JACOBSEN REAL ESTATE, 132 Main, Scio, Oregon. 22-2

FREE CATALOG describes Wisconsin farms for sale. Your copy is ready now. Write LOGANWAY, INC., Fort Atkinson, Wisconsin. 1-*

HELP WANTED

WANTED: Experienced artificial breeding technicians. Through our frozen semen program and freezers, areas may be developed in any state. References required. Write PIPER BROTHERS FARMS, Watertown, Wisconsin for details. 8-*

WANTED: Experienced dairy farmer for herdsman farmer position. Family help desirable. Must be honest and hard working. Herd of 53 milkers. 7-room house. Eastern location. Top wages. Write, giving experience, salary etc. BOX 762, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANTED young married progressive dairyman to be herdsman-manager of completely new modern 200 Holstein dairy. Must have experience in AI. Located scenic mountain valley northern New Mexico, modern 2-bedroom home, school bus. Rare opportunity for man with ability. Write WM. SALMAN RANCH, Las Vegas, New Mexico or call La Cueva No. 1, through Las Vegas.

WANTED: Single man for dairying and general farming. Will pay up to $200 per month, plus room, board and laundry to right man. Personal interview required. Drinkers need not apply. ELMO CLEMENS, Osage Farm, Frankfort, Illinois. Phone Frankfort 2433. 22-*

RELIABLE MARRIED MAN to work on dairy farm in Central New Jersey. House provided. Must be experienced milker. BOX 734, care Hoard's Dairyman, Fort Atkinson, Wis.

WANTED: Experienced herdsman for purebred Guernsey farm located Southeastern Pennsylvania near schools and city. Exceptional opportunity for right man. Give complete information including education, experience, marital status and salary requirements. BOX 756, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

WANTED: Working dairy farm manager, experienced with Guernseys. Good salary, profit sharing, home. Must be married, around 30, clean habits. 400 acres in Barrington, Illinois. JAMES WHITMORE, Room 1643, 231 South LaSalle, Chicago 4, Illinois.

WANT AN EXPERIENCED SINGLE MAN, year around for a 25 registered cow herd, grade A setup and to help with farm operations, level land, modern machinery. Work and character references, wages expected in first letter. Board and room furnished in modern home. GEO. B. HARMS, R.#2, Hooper, Nebraska. 23-2

SPLENDID OPPORTUNITY for conscientious, capable, married man who loves Guernseys. Need a good herdsman in the near future and am willing to pay good salary and many extras to a good man looking for a permanent position. Southern Wisconsin. Send references and expected salary. BOX 760, care Hoard's Dairyman, Fort Atkinson, Wis. 23-2

HELP WANTED

MARRIED MAN, who knows dairying and machinery, for modern farm. HILLVIEW DAIRY, Route 1, Box 107, Blanchardville, Wisconsin. 22-2

HAVE OPENING for good milker in milking parlor operation. Good salary, incentive plan, good living conditions. BOX 752, care Hoard's Dairyman, Fort Atkinson, Wis. 23-2

HERDSMAN for outstanding Jersey herd in midwest. Must be good milker. Grade A setup. Excellent location. State qualifications and references. BOX 737, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

OPPORTUNITIES for men who want steady employment on a large certified milk farm. Paid vacations, sick benefits. Write for information. We want sober and reliable men. WALKER GORDON LABORATORY COMPANY, Plainsboro, N. J. 9-spl

HELP WANTED—WOMEN

WANTED: Housekeeper on large Wisconsin dairy farm, ranging in age from 20 to 33 years of age. BOX 759, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

POSITIONS WANTED

WANTED on West Coast dairy, responsible job with opportunity for future. Danish, married, 34, experienced in all phases of 300 cow dairy farm. BOX 761, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

FARM MANAGER, age 36, married, 3 children, desires position with future. Lifetime experience in dairying. Graham graduate, 6 years present position. Highest reference. BOX 755, care Hoard's Dairyman, Fort Atkinson, Wisconsin.

YOUNG DUTCH FAMILY wants position as manager on dairy farm. BOX 753, care Hoard's Dairyman, Fort Atkinson, Wis.

SALESMAN WANTED

OPERATE PROFITABLE BUSINESS in your area. Atrazine, sprayers, fiberglass products. Detroit Lakes, Minnesota. 21-*

ORGANICALLY produced pecans. 35c lb. Postage extra. CHARLES DOAN, Welsh, Louisiana.

RAISE DAIRY GOATS. National magazine shows how. 3 month trial, 25c. DAIRY GOAT JOURNAL, Columbia F-26, Missouri.

COUNTRY MUSIC FANS, send for free catalog of hit country music records. SAN-LYN COMPANY, Dept. HD, 414 Cortland Avenue, Syracuse 5, New York.

SENSATIONAL new longer-burning light bulb. Amazing free replacement guarantee — never again buy light bulbs. No competition. Multi-million dollar market yours alone. Make small fortune even spare time. Incredibly quick sales. Free sales kit. MERLITE (Bulb Division), 114 East 32nd., Dept. C-74M, New York 16.

MAKE BIG MONEY taking orders Campbell's Gro-Green liquid and 100% soluble crystal fertilizer concentrates. Saves time, money, labor. Feeds foliage, soil. Field proven over 10 years. Increases protein, mineral content grains, forage. Free sample. Selling outfit. Credit given. Ideal for corn and feed men. CAMPBELL COMPANY (Est. 1926), Rochelle 60, Illinois. 23-10

OF INTEREST TO WOMEN

HAVE A PROFITABLE HOBBY sewing aprons, children's wear. Details free. REDIKUT'S, Loganville 19, Wisconsin. 9-spl

MISCELLANEOUS

HOW TO TRAP SPARROWS and starlings with famed, "Black Lily" elevator traps. New information everyone should have. It's free. Simply address, SPARROWTRAPS, 605 Detroit Lakes, Minnesota. 21-*

DOGS

SHEPHERDS, COLLIES. Outstanding Heelers. Watch Dogs. ZIMMERMAN FARMS, Flanagan, Illinois 2-*

GENUINE English Shepherd and Collie Pups. Healthy and strong. Guaranteed heelers. Year's trial. Choice of sex. Spayed females a specialty. Priced right. CLOVERDALE KENNEL FARM, Ackley, Iowa. 18-*

SWINE

FOR SALE: Wisconsin feeder pigs delivered direct from farmer to farmer in one day. Sold by weight, $12.50 for 40 lbs., 10 cents a lb. for each additional lb. Veterinarian inspected. All top quality. C. ACKER, Middleton, Wisconsin, Terrace 6-3451. 23-*

BEEF CATTLE

CHAROLAIS PUREBRED. Females, bulls, Foundation herd quality. Imported Yates bloodlines. HILL LAMME, Leclede 17, Missouri. 23-*

100 CHAROLAIS bulls and heifers. Selling at private sale December 15-16-17. NAPIER BROS., Marengo, Illinois.

DAIRY CATTLE

NOTICE TO BUYERS — WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian. — Hoard's Dairyman.

MORE SPECIAL OPPORTUNITIES ON NEXT PAGE

DAIRY CATTLE

REGISTERED HOLSTEINS: A few service age bulls, some younger males, foundation females and heifers. Nearly all sired by excellent sires and from classified dams with HIR records. SanMarGale FARMS, Box 265, Lebanon, Ohio. Phone 5-2606. 22-*

CANADIAN Registered Holsteins. Young vaccinated cows and heifers. Buy direct from the farms. Elgin County Holstein Breeders Club. Telephone Talbotville, Ontario 6-R-12. DON SHORE, R.R. #6, St. Thomas, Ontario, Canada. 7-*

FOR SALE: Holstein springing heifers and cows. Good selection of open and bred heifers. R. B. BRICHER, St. Charles, Illinois. Phone JU-4-2347 days, JU-4-2095 nights. 7-24

HIGH QUALITY Holstein and Guernsey springers and heifers all sizes. J. W. & BILL GEURKINK, telephone 322 or 21F31, Baldwin, Wisconsin. 15-*

ATTENTION CATTLE DEALERS and farmers: 1,200 to 1,600 lb. Wisconsin and Canadian cows. Vaccinated, TB and blood tested to go anywhere. Always a large selection on hand. Top heifers and cows. Springers and fall heifers. Wholesale prices by trailer-load. 5% above first cost. Why chase over the country. Money saved with your first stop here. Delivery arranged same day as purchase. Call Utica RE-6-2972. CENTRAL NEW YORK LIVESTOCK SALES, INC., River Road, Marcy, New York. Located ½ mile West of the Marcy State Hospital on Route 49. 23-spl.

CHOICE SELECTION of Holstein dairy cows and heifers, fresh and close springers. T.B. and Bang's tested. Calfhood vaccinated, Registered bulls service age. HARTMAN & SON, Hampshire, Illinois. Phone 2621. 2-*

ATTENTION DAIRYMEN and Cattle Dealers: Indiana's largest selection of grade and purebred Holstein cattle, bred for production and show type, will sell one or 500. We will ship subject to approval. Cattle eligible for any state. Vaccinated, TB and Bang's accredited. Terms to reliable parties. BOTTEMA FARMS, Rural Route #2, Box 205, Indianapolis, Indiana. Phone TE 9-6575. 12-*

CANADIAN HOLSTEINS direct from the farms. Registered, T.B. and Bang's certified. MIDDLESEX HOLSTEIN BREEDERS ASSOCIATION. Phone Lambeth OL 2-2616. Hardy Shore, Glanworth, Ontario. 15-*

FOR SALE: Buy your vaccinated dairy cows and heifers direct from the farmers where quality prevails. GEORGE E. SWANSON, Rice Lake, Wis. Phone CEdar 4-4717. 6-19

FOR SALE: High quality Holstein heifers, calfhood vaccinated, TB tested. NATIONAL DAIRY RESEARCH FARM, P. O. Box 143, phone Hickory 2-1940, Danville, Illinois. 30-6

WISCONSIN HOLSTEINS for the Southern States. Guernsey, Jersey, Brown Swiss. Our sized heifers my specialty. Financed. Call P. R. ELAM, Marshall, North Carolina, phone 3451, or Mars Hill, North Carolina, 2381 nights. 14-*

HOLSTEIN COWS and large heifers. Some calving every day, close up and later. You won't find as many good uddered and quality cattle on hand anywhere. Save time and expense. HARRY BIRGER DAIRY CATTLE COMPANY, Rosemount, Minnesota. GA-3-4521. 14-10

KENYON BROTHERS FARM serving the dairy farmer for forty years. Large selection of choice Holstein cows and first calf heifers, fresh and close springers, service bulls. T.B. and Bang's tested. In carload or truckload lots. KENYON BROTHERS CO., Elgin, Illinois. Phone 8Her ood 1-1818. 19-*

KEATING BROTHERS FARM offers large selection fresh and springing selected cows and heifers, tested and vaccinated. Buying on order saves time and money. Call or write FORT ATKINSON, WISCONSIN. Telephone JOrdan 3-5905. 21-*

DAIRY CATTLE SALES, every Thursday, April through October. Top springer cows and heifers. 400 to 600 head every sale. MATTES LIVESTOCK MARKET, Thorp, Wis. 10-*

HOLSTEIN HEIFERS, springing first calf heifers and young cows. Excellent quality. Write or telephone for prices and details. WALTER McFARLAND, Watertown, Wisconsin. Telephone 560. 1-spl.

REGISTERED Holstein and Ayrshire cows and heifers, Bang's certified herds. PEARSON BROS., Waterdown, Ontario, Canada. 13-spl.

SELECTED SPRINGING HOLSTEIN cows and heifers, all ages. Registered and grade. WILLIAM CLOW, Plainfield, Illinois. General 6-6629. 23-3

HIGH QUALITY Wisconsin dairy cattle. Holstein and Guernsey dairy cows and heifers, fresh and close springers. Open and bred heifers all sizes. HRDLICKA BROTHERS, Jim Falls, Wisconsin. Phone Fulton 2-3135 or 2-3131. 23-6

DAIRY CATTLE, FINANCING. Top quality dairy cows and heifers available on financing plan. No down payment, up to 36 months to pay. Low interest rates to reliable parties only. Always large selection fresh and heavy springers on hand. Every cow guaranteed tested. For information write FRANK MACKEY, Lenexa, Kansas. TU-8-5389. Farm located 7 miles west Overland Park, Kan. on 87th. 23-2

DISPLAY

A NEW SERVICE For Dairyman For Dairyman

Dairy Cattle Replacement Marketing. Select your Replacement Cattle from over 30,000 dairymen! We handle only quality cattle. All breeds.

A.I.— GRADES— REGISTERED

Fieldmen Services — Commission charge of $5 on all orders over 10 animals. $10 on orders less than ten animals.

FOR INFORMATION, CONTACT — Wayne L. Wendorf

TRI-STATE BREEDERS COOPERATIVE

Westby, Wisconsin Phone 93

Subscription expiring soon? Renew at today's rates. Five full years for only $3.00.

JERSEYS

Dairy Program Of The Future — Jersey!

FIVE REASONS WHY PROFIT-MINDED DAIRYMEN LOOK TO JERSEYS IN THEIR PLANS FOR THE FUTURE...

1. The investment needed to establish a Jersey herd is most reasonable.
2. Jerseys are more profitable... produce more profits per acre ... more profits per 100 lbs. of cow.
3. Jerseys mature earlier ... live longer and are adaptable to climatic conditions the world over.
4. Jerseys are backed by a successful nation-wide breed and milk merchandising program.
5. Jerseys produce high protein, high solids milk ... truly the breed of the future.

There Are Many Additional Reasons For YOU To Consider Jerseys. Write Today For Detailed Information. Please Mention Size Of Herd Or Your Plans For Future.

THE AMERICAN JERSEY

ajcc

CATTLE CLUB

1521 East Broad Street
Columbus 5, Ohio

I have choice high grade bred Jersey and Guernsey heifers, also fresh and springer cows. All T.B. and Bang's tested. Come and make your selection, or will fill your order or help you buy. Phone University 5-4113. **CLAUDE THORNTON, Route 2, Box 296, Springfield, Mo.**

Brigham Jerseys

BRIGHAM BULLS

Have Proved

Great Investments To Purchasers Far And Wide

Why Not Improve Your Production And Have A Valuable Proved Sire To Sell?

PROFIT Two Ways On The Bulls You Buy From Brigham Farm

WE HAVE A NEW BULL LIST AWAITING YOUR REQUEST

BRIGHAM FARM ST. ALBANS, VERMONT

SECOND PRIZE BULL

(Junior yearling class Minn. State Fair 1961) by Pixys China Cup (9 daus. av. 11,000 M, 640 F, mature basis). His dam is Pixy Tristram Dixie, EX (first prize 4-yr-old class, Minn. State Fair 1958) with 12,241 M, 609 F, mature basis.

PIXY FARM HUDSON, WIS.

JERSEY AND GUERNSEY HEIFERS

Heavy springers, bred or open. Also Jersey and Guernsey cows, fresh or springers. 250 to 300 head on hand at all times to choose from. Mostly calfhood vaccinated. All animals shipped by Federal regulations of your state. I deliver. **ELLIS W. TAYLOR,** Route 1, Strafford, Missouri. Phone RE 6-2755.

AYRSHIRES

IMPROVE YOUR DAIRY HERD

TAKE THE TOP-RANKING AYRSHIRE SIRE'S CALF. USE HIM UNTIL HE IS 3 YEARS OLD FREE. WRITE CORKWELL & WEIMER, Mt. Sterling, Ohio.

Are you moving? So that you won't miss any issues, notify us three weeks prior to moving date.

NOW YOU CAN BUY

POLLED AYRSHIRE BULL CALVES

That are from high producing families
That are of Carefree Farms & Penshurst Breeding
That give you excellent type calves
That are priced at prices sure to please

WRITE FOR PEDIGREES AND PRICES

CAREFREE FARMS NEW HAVEN, INDIANA

THE NEW AYRSHIRE LOOK

GREATER PRODUCTION PROOF

ACTUAL 2X 305 DAYS

SHAGBARK RHODA—1024 F. 20,605 M. at 8 yrs. Pictured here.
CRYSTAL SPRING BEVERLY H.B.— 24,630 M. 911 F. at 7 yrs.
GREEN VALLEY RAFF INCENSE— 21,255 M. 916 F. 4.3% at 7 yrs.
VALHALA HANNAH 2nd—20,616 M. 916 F. 4.4% at 4 yrs. 4 mos.

GREATER PROFITS — Noted Longevity with Lower Replacement costs — Economical converters of feed to quality milk — Regularity of calving — Lower Veterinary costs — Udders strongly attached.

GREATER OPPORTUNITIES — For Net Profits — For Milk that suits the Market — For Sales

Write: **AYRSHIRE BREEDERS' ASS'N.,** 10 Center St., Brandon, Vt.

A Vest Pocket Herd Book Is a Good Investment

GUERNSEYS

A BULL OF YOUR OWN

FOR UNIFORMITY IN YOUR HERD. Select a good typy young bull sired by one of our fine quality sires—Santadair F. Prediction or Santadair L. Princton, or Fairlawn K. Princeton. They will add quality to your herd and they are priced right. See them at the farm. Highway #96—between Stillwater and White Bear Lake, Minn.

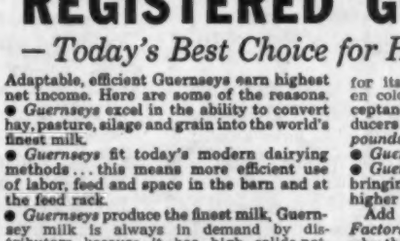
SANITARY FARM DAIRIES, INC.
415 Grove St. St. Paul 1, Minn.

Buy More U. S. Savings Bonds.

SERVICE AGE GUERNSEY BULLS

Sired by Gold Star Sires, Fritalyn Jeanette's Flash, and Blakeford Transfer. Dams backed by 15 years of continuous DHIA testing, 3 years of HIR and DHIR. Records up to 13560-696-5DHIR-305-2x, and many other good ones. Foundation cow has over 5700# fat, lifetime, still on test, classified VG 5 times. All records made under ordinary farm conditions, with machine milking and no hand stripping. Herd classified 6 times. Write for price and pedigree.

THREE CLIFFS FARM
DON FORNER CHASKA, MINN.



FREE FACTS

on How to Succeed in Modern Dairying with

REGISTERED GUERNSEYS

— Today's Best Choice for Highest Net Income

Adaptable, efficient Guernseys earn highest net income. Here are some of the reasons.

- *Guernseys* excel in the ability to convert hay, pasture, silage and grain into the world's finest milk.
- *Guernseys* fit today's modern dairying methods ... this means more efficient use of labor, feed and space in the barn and at the feed rack.
- *Guernseys* produce the finest milk. Guernsey milk is always in demand by distributors because it has high solids-not-fat, protein, Vitamin A and mineral content. Guernsey milk is world renowned for its delicious flavor and unique golden color . . . which assures consumer acceptance. Remember, distributors pay producers on the basis of total solids—*not on pounds of milk alone!*
- *Guernseys* are easily handled.
- *Guernseys* are the earliest maturing breed, bringing you profits sooner and returning higher lifetime income.

Add all these important *Guernsey Plus Factors* together and you'll see the reason why the Guernsey breed adds up to highest net dairy profits.

Start Your Registered Guernsey Herd Now!

FREE FACTS—write today

THE AMERICAN GUERNSEY CATTLE CLUB
25 Main Street, Peterborough, N.H.

☐ Send FREE information on how to start a Guernsey Herd, and a copy of "Profitable Dairying."
☐ Send FREE information about extra profits selling nationally advertised Golden Guernsey Milk.

NAME _____
ADDRESS _____
TOWN _____ STATE _____

GUERNSEY
SALES SERVICE

Six fieldmen of the largest Guernsey Association in the nation are fully acquainted with cattle for sale in Pa., Del. and Eastern States. We have private listings at all times, also regular monthly sales. If you need one, or a car load, write for prices — get quick service. If you want to sell, contact us — low selling charge — prompt payment.

Often requests for cattle come from all over the United States. It may be from your next door neighbor! Send us your listing so we can tell the prospect nearest you.

Pa. Guernsey Breeders' Ass'n.
P. O. BOX 302 CAMP HILL, PA.

GRANDVU GUERNSEYS — Choice young bulls and heifers, all ages. Blue Ribbon Type sire, production breeding. From 2 great Proved high index sires. Flying Horse Masters Royal, Greenfield Music Maker, Foundation Club Calves. The right kind at the right price. Write or come to Grandvu Farms, Wrightstown, Wis.

GUERNSEYS

Waukesha County can furnish you with most any kind of Guernseys you desire—grade or pure bred. Lee Burlingham, fieldman, at your service. Waukesha County Guernsey Breeders' Assn., Waukesha, Wisconsin.

HOLSTEINS
GUERNSEYS

Large selection of high grade cows and heifers of all ages. Calfhood vaccinated — lab. tested. We feed well balanced roughage for top production and size. Buy direct and save. Experienced insured transportation.

LAKESIDE DAIRY FARMS
Quality Cattle Since 1929
Silver Lake, Indiana Telephone 3801-3804

PUREBRED
GUERNSEYS

Choice well bred heifers and young cows due December through February. Also heifer calves and yearlings. By proven sires and from great cow families. Production testing for over fifty years.

TARBELL GUERNSEY FARMS
SMITHVILLE FLATS, N. Y.

JEFFERSON COUNTY GUERNSEY BREEDERS ASSOCIATION—Guernseys—registered and grade females, all ages. Also bulls. Free service to buyers. Write or phone: William Erdman, Route 1, Fort Atkinson, Wisconsin, JOrdan 3-8731.

BROWN SWISS

BIG STRONG CALVES ARE GOOD PROPERTY

BROWN SWISS calves are big and strong at birth, usually weighing between 80 and 100 pounds. Regardless of what your program calls for, you have a calf which is good property.

Heifer calves have a good start toward becoming that big, strong dairy cow that will make you money in the milking barn. If you have a surplus to sell, they are readily saleable to other farmers or dairymen wishing to build a herd.

If you have male calves which you do not desire to grow out for breeding purposes, you will find they have a high veal value. Other BROWN SWISS breeders find male calves, which are steered and put into the feed lot, make rapid gains and are good property.

— Have A Cow That Has A Calf With Value —

For more information about the breed—Write: BROWN SWISS ASSOCIATION, BELOIT, WIS.

HOLSTEINS

FOX RIVER VALLEY HOLSTEIN BREEDERS ASSOCIATION

Serving nine counties, in the heart of Wisconsin's dairy land. Foundation registered and top quality grades available, bred for type and production. Over 300 registered breeders in area. All popular Holstein bloodlines. 5 large artificial breeding rings serving the area. Come and make your own selections, or will buy on order at your direction. Fieldman service. Write, wire or phone G. J. STANCHFIELD, Phone WA 25264, 30 Champion Avenue, Fond du Lac, Wisconsin.

JEFFERSON COUNTY HOLSTEIN BREEDERS' ASSOCIATION
REGISTERED and GRADE HOLSTEINS

available from top DHIA accredited herds, many using artificial breeding. Heifers at all ages, good young cows. Financing Available. Free fieldman services. Write-wire-phone for prices: WILL BETSCHLER, Fieldman
Office in Black Hawk Hotel, Fort Atkinson, Wis.
Phone JOrdan 3-2329
Res. Phone LYnwood 3-2351 at Sullivan, Wis.

NORTHERN DAIRY CATTLE DIRECT FROM FARMER BREEDERS

T.B. & Bang's accredited county. Fieldmen sales & service, or orders filled. For information write, call, or wire Barron Co. Coop. Dairy Cattle Sales Ass'n, Barron, Wis. Glen L. Krahenbuhl, Mgr. PRi Lennox 7-3202.

Purebred registered Holstein cows, heifers and service age bulls. These are top quality cattle bred and raised on our farm. Years of testing DHIA, calfhood vaccinated, TB and Bang's free. We will deliver. For more information call or write CARL MEDSKER, phone 2-3319 or 2-3067 Graysville, Ind.

MEDSKER FARMS SULLIVAN, IND.

LINMERE PONTIAC VIVIAN EX
2-2 2x 365d 12,337 561 4.5% HIR
3-5 2x 308d 11,989 519 4.3% HIR
5-6 3x 365d 20,522 839 4.1% AR
6-7 3x 333d 14,197 580 4.1% AR

OFFERING A BUTTERBOY SON FROM THIS EXCELLENT COW

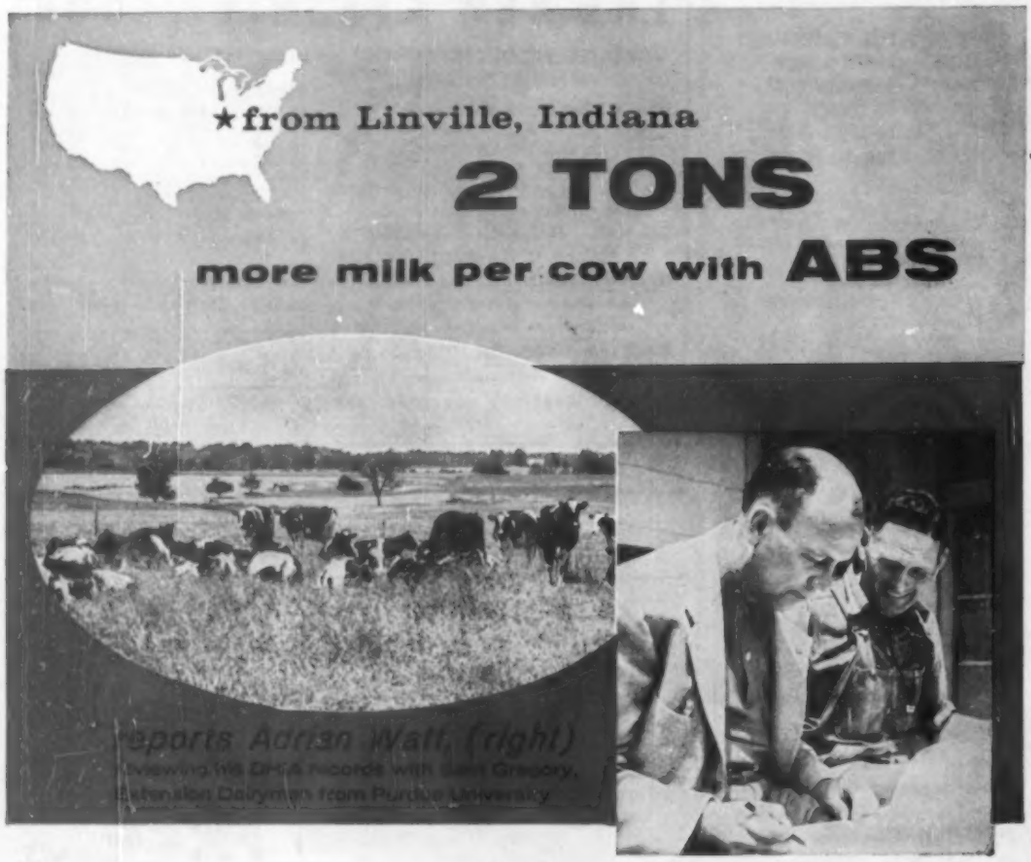
Linmere Pontiac Vivian has an outstanding pedigree. Her sire, Carnation Ormsby Pontiac Imperial, is an EX 8M Production sire. He is also the sire of the famous EX 1,180 lb. producer Puget Sound Pontiac Peaches.

Vivian's dam is a VG dau. of Hallrose Ranger an EX GM son of Hallrose Progressor who is also EX GM. The next dam is a VG dau. of Hallrose Hazel Inka, a VG GM sire, who, in turn, is a son of Hallrose King Hazel an EX GM son of EX twice All-American Ormsby Aaggie Tilda the dam of Carnation Black Magic.

Vivian's son, Ear Tag B-703, was born September 2, 1961. He is 80% white and is a big, long bodied, broad rumped calf.

Write for pedigree, pictures and price.

Carnation Milk Farm
Address: CARNATION MILK FARMS
Dept. 2216
Carnation, Washington



When Adrian Watt of Linville, Indiana, first began using American Breeders Service in 1947, his herd of Registered Holsteins averaged 10,032 pounds of milk and 326 pounds of butterfat per cow. Now his herd's DHIA average is running at 14,052 pounds of milk — an increase of 4,020 pounds per cow — and 536 pounds of butterfat — an increase of 210 pounds per cow.

Mr. Watt says that by using the ABS Breeding Program, along with good feeding and management, he plans to have a herd average of 600 pounds fat some day. Many of his cows are running over 600 now and some are over 700 pounds. He says he starts considering whether or not an animal should be culled that only makes 500 pounds fat per year.

"We use the ABS Breeding Program just as it comes," Watt says. "Only once have we made a special selection of bulls . . . the rest of the time we have allowed our technician to use whatever bull he thought best."

Increase production and profit in your herd — with the ABS Proved Sire Breeding Program. You get the service of an outstanding proved sire *every time*. Your cows stand the best chance to settle with ABS Frozen Semen — national 60-90 day non-returns average 72 percent. And you get the know-how of an organization that's bred more than 11 million cows since 1941. Call your local authorized ABS Distributor for service today!

ABS
EVERY SIRE PROVED GREAT

Give your herd a proved sire future

AMERICAN BREEDERS SERVICE

325 North Wells Street • Chicago 10, Illinois

NOTICE TO BUYERS

WHEN BUYING DAIRY CALVES OR DAIRY CATTLE, inspect and select cattle personally. If impossible, have them checked by someone in whom you have confidence. Complete understanding in writing between buyer and seller is very important. Should you buy on approval, it is advisable to have animals inspected by a veterinarian on arrival before acceptance. Report serious health problems to your state veterinarian.

— Hoard's Dairyman.

REGISTERED HOLSTEIN COWS and heifers. Calfhood vaccinated. Largest herd of registered Holsteins in America. Our prices are very reasonable and we deliver anywhere. Everything guaranteed exactly as represented. See, write or call us before buying dairy cattle of any kind. Visitors always welcome.

GREEN MEADOW FARMS Elsie, Michigan

WISCONSIN STATE INSTITUTION

HOLSTEINS

"With development of bloodlines in our institution herds that have proved so outstanding in some of the best herds in the U.S.A., and in many foreign countries, we continue to offer the best in breeding stock.

"The Excellent and Gold Medal animals speak for themselves and with intensified linebreeding their offspring run true to form.

"A number of choice bulls from which to select a herd sire always available.

"For information and sales lists, write to

FRED M. WHITEMARSH, Farm Supervisor
STATE DEPARTMENT OF PUBLIC WELFARE
State Office Building, Madison, Wisconsin."

INTER-COUNTY
DAIRY CATTLE ASSOCIATION

Box 823 118 Baxter St., Waukesha, Wis.
Phone: LI 7-3644

Registered or high grade Holsteins for foundation or replacement. Come and make your selections or we will fill your order as directed. Years of experience handling domestic and foreign shipments. Financing. Write for information.

ARTHUR F. BENNETT REYNOLD BENNETT
JAMES L. GORDON

This month we offer Stoffell Costie Elmer, born Dec. 1, 1960. He is sired by Stoffell Costie Carnation Inka, a Carnation Stylemaster son. His dam Stoffell Carnation Eliga as a 4-yr-old produced 17,330 M.

For price and pedigree write.

STOFFELL'S MILK FARMS

Route 12 Knoxville, Tennessee

CHOICE HOLSTEIN cows and heifers, all ages. Vaccinated. TB free. Fieldman available, or will fill orders as directed. DEAN HARNDEN, Whitewater Dairy Association, Whitewater, Wis. Phone Palmyra 495-2422.

CAREFULLY SELECTED SIRES
For the Sound Dairyman
PIPER BROS. FARMS INC.
ARTIFICIAL BREEDING SERVICE
WATERTOWN, WISCONSIN

CARNATION BUTTERBOY COUNT
His sire—Carn. Madcap Butterboy
His dam—A sister of France Ideal Pilot with 970 F

"Proven" and Highly Classified Sires. Service now available in many parts of the Nation as well as in Wisconsin. Semen available anywhere in U.S. or foreign countries on order.

BREEDS

HOLSTEIN	JERSEY
GUERNSEY	ANGUS
BROWN SWISS	HEREFORD

WRITE FOR COMPLETE PEDIGREES

GILSON BROS. Greenleaf, Wisconsin

Fifteen miles South of Green Bay at Intersection of State Highways 57 & 96.

Phone: Wrightstown 532-6622

DAIRY SALE the last Thursday of each month at 2 o'clock in our new Sales Pavilion.

Registered and Grade Cows and Heifers — all ages.

Fieldman Service, Order Buying. Private Sales Daily.

BUY HOLSTEINS STRAIGHT FROM "THE HEART!"

Best selection from one of the world's largest dairy counties. Over 15,000 cattle are on D.H.I.A. test and more than 40,000 bred artificially from some of the top proven bulls. Fieldman sales and service. For information write: Frank E. Cairns, Fieldman, City County Bldg., Madison, 9, Wisconsin.

TEL. ALPINE 6-0513 OR CEDAR 3-6538

DANE COUNTY HOLSTEIN BREEDERS CO-OP ASSOC. MADISON, WIS.

WISCONSIN DAIRY CATTLE
Holsteins Guernseys-Brown Swiss

COWS, HEIFERS
ALL AGES
Registered and nonregistered

Come here and make you own selections. Or we will fill your order on direction from you and deliver on approval. Shipments accompanied by the proper health certificates. Delivered in truck load lots to your farm, in our own trucks by experienced cattlemen.

FINANCING AVAILABLE

JAY SHEAFOR, JR.

ROUTE 1, RICHLAND CENTER, WIS.
Phone MI 7-3206 or MI 7-2515

HOLSTEINS
REGISTERED AND GRADES

Select foundation Holstein Cows and Heifers with Production, type, and size from our Foundation Wisconsin Herds. Artificial Breeding, Calfhood Vaccinated, Bangs and T.B. Tested.

FINANCING

Arrangements have been made with the Dairy Credit Co., DeKalb, Illinois to finance acceptable purchases. Only a down payment is needed and the balance on monthly installments. "The cows will pay for themselves as they produce." For more information about financing call or write Dairy Credit Co., 112 East Locust Street, DeKalb, Illinois Phone 6-4611.

Plan to come and select your Wisconsin Holstein or we will buy on order at your direction. Fieldman service write or phone.

PIPER BROS.

Box 362 Phone 2170 Watertown, Wisconsin

COLUMBIA COUNTY HOLSTEIN BREEDERS' ASS'N

Serving five counties. Offering select quality heifers and young cows, grade and registered, bred for type and production. Also choice serviceable, registered bulls. Mostly Burke and Carnation breeding. Free fieldman service.

For information write: W. K. WRIGHT, Rt. 1, Columbus, Wis. Ph. Fall River 26F21

TRI-COUNTY HOLSTEIN ASSN., Watertown, Wis., Box 143. We fill orders efficiently for both Registered and Grade Holsteins. We furnish field service for selecting your animals. Fifty years in business—we aim to satisfy. Can furnish references. Francis Darcy and Sons — N. on Hy. 26 — 7 miles.

Holstein Cows and Heifers

If you're looking for cows or heifers come to Dodge County where good Holsteins are raised. Buy them first-handed and save expenses. We have 250 head of bred and springing grade and purebred Holstein cows and heifers on hand at all times. Can furnish transportation for any number large or small.

LOUIS NEHLS

Phone FULTON 6-4401 Juneau, Wisconsin

HOLSTEIN DAIRY CATTLE — Registered and Grade cows, heifers of all ages. TB and Bang's tested, calfhood vaccinated. Write or call for free price list. Fieldman service or will fill orders at your direction. GEORGE PIPER, Watertown, Wis., Phone 2912-W.

ARE YOU MOVING?

Be sure to notify us three weeks ahead of time. Then you won't miss any issues. Give both your old and new addresses. — Hoard's Dairyman.

WISCONSIN DAIRY CATTLE

Springing cows, springing heifers, bred heifers, open heifers. All breeds. We pride ourselves with satisfied customers. All cattle guaranteed at time of sale. We will deliver. Call or write:

WINSTON D. JUDD
Bancroft, Wis. Phone 136R or 136J2

H. A. MEYER CATTLE CO.
PLYMOUTH, WISCONSIN
TW 2-6941

Quality dairy cattle available at all times. Fieldman service, order buying, and financing.

SanMarGale HOLSTEINS For Sale

Your opportunity to purchase at private treaty foundation stock from the heart of our breeding program. We are reducing our milking herd from 200 down to 60 cows. Also have approximately 150 heifers for sale, from baby calves to springing heifers.

Every Animal in the Herd will be Priced For Sale

The present herd is a product of over 20 years of careful culling and breeding. We have owned the great herd sires listed below and their daughters and granddaughters are the nucleus of the herd.

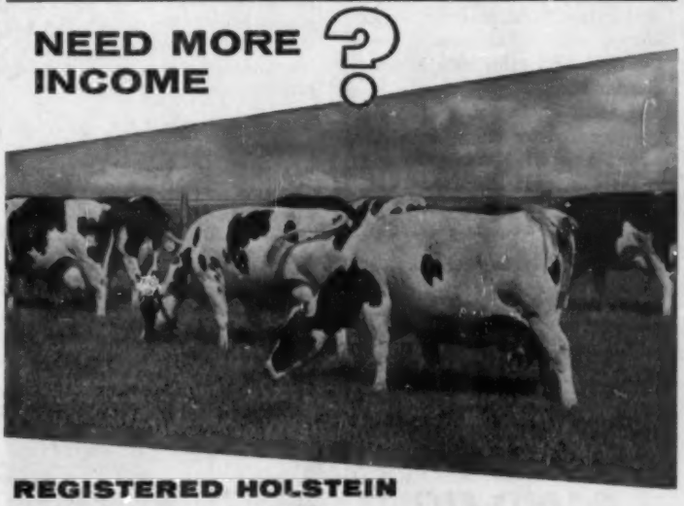
Carnation Perfection Triumph—SMP—A son of the old 1,333 lb. Carnation "Nutual" cow.
Pabst Burke Dictator—EX—4 EX dams. A son of old Burke from 902 lb. dam.
Pabst Roburke Belmont—EX—GM—Son of Pabst Roamer from EX Burke daughter.
Wis Whirlwind—EX—SM—Son of Wis Ideal and the great Wis. Venus cow (EX—200,000 lbs. M).
Bellman Burke M-O-W EX—EX sire and EX 900 2x dam.
Bellman SanMarGale Sensation—EX—from EX sire and EX 832 lb. dam.
1961 Herd Classification—7 EX—36 VG—95 GP—35 G

CREDIT, TERMS AVAILABLE ACCREDITED, CERTIFIED, VACCINATED

SanMarGale Farms, Lebanon, Ohio
Write Box 265 or call Jack Holtzapple, Mgr. Lebanon 5-2606

A Vest Pocket Herd Book Is a Good Investment

NEED MORE INCOME ?



REGISTERED HOLSTEIN sales representatives can help you find it!

Why be satisfied with grades — even the good ones? Go after the best! Build your herd with REGISTERED HOLSTEINS — the valuable growth stock that multiplies your net worth like a blue-chip security at compound interest.

REGISTERED HOLSTEINS boost your milk check. And they give you a second cash crop — purebred calves — worth at least $100 more than grades in sales reports from all over the nation.

Send the coupon for a list of qualified Sales Representatives who stand ready to help you get started with REGISTERED HOLSTEINS.

SEND THIS HANDY BLANK FOR AN UP-TO-DATE LIST

Registered HOLSTEINS *Breed of the Times*

Fit the farm...
Fit the market

The Holstein-Friesian Association of America, Dept. HD, Brattleboro, Vermont

Gentlemen: Yes, I'd like to contact a Registered Holstein SALES REPRESENTATIVE. Please send me a list.

Name .....

Address .....

NEW BERG PACESETTER

Now, BERG puts "Cadillac features" in a low-cost barn cleaner

The new Berg Pacesetter is priced with the lowest, yet its design is identical to that of the famous Berg Choremaster barn cleaner.

You save money because the Pacesetter is built to operate a 200-foot gutter chain, and can be purchased without automatic chain tightener. But this new low-cost cleaner has the *same* type motor and roller chain drive, the *same* one-piece gutter chain links, the *same* corner wheels, and the *same* seamless steel elevator as the famous Berg Choremaster.

More dependable! Berg one-piece links of forging steel weigh over 2 lbs. each. There are no pins or rivets to rust, bind, or break. Flights are welded to big chain links for keeps.

More sanitary! Drive sprocket pushes manure from every link to self-clean chain. Liquid-tight, seamless steel elevator ends rot and corrosion woes.

Lasts longer! Simpler, more rugged construction, and expert installation by Berg Contractor-dealers are your assurance that the Berg Pacesetter will give long, trouble-free service.

Send for FREE Plan Help!

BERG EQUIPMENT CORP.
MARSHFIELD, WISCONSIN (HD-12)

Name_____
Address_____
Town_____ State_____

Send me information about Berg Stalls and Stanchions ☐ Barn Cleaners ☐
Simplex Water Bowls ☐ Cow-Saver Tie Stall ☐
Ventilation ☐ Steel Pens ☐ Silo Unloader ☐
I'm building a new barn ☐ Remodeling ☐

GET MORE FOR YOUR MONEY with
RAPID-FLO®
Single Gauze Faced Milk Filters
by
Johnson & Johnson
1918 West 35th Street
Chicago 32, Illinois

FLEX-BEAM FORKS BY UNION

are unbreakable where other forks break. For the strongest shovel, get RAZOR-BACK, or RAZOR-LITE.

The Union Fork & Hoe Co., Columbus, Ohio

Clip Farm Animals Regularly

Sunbeam STEWART CLIPMASTER ANIMAL CLIPPER

Powerful Motor Inside the Handle

CLIPS Cows, Horses Mules, Dogs, faster, better

Clip your animals faster, easier with the new Sunbeam Stewart Clipmaster animal clipper. Has quiet, more powerful air-cooled, ball-bearing motor inside Easy-Grip handle. **No. 51**, $52.95 (Colorado & West, $53.25).

Sheep shearing attachment converts animal clipper into Shearing Machine which has year 'round use for the farm flock. **No. 31A**, complete with cutting blades $36.75 (Colorado & West, $36.95).

Blades for Clipmaster Animal Clipper

Bottom Clipping Blade. Individually packed. Catalog No. 84AU. $3.35.

Top Clipping Blade. Individually packed. Catalog No. 83AU. $2.95.

Sunbeam CORPORATION
Dept. 30, 5600 W. Roosevelt Rd., Chicago 50, Ill.
©Sunbeam, Stewart, Clipmaster

Veterinary Column

by E. A. Woelffer, D.V.M.

Female and male twins

Most dairymen do not welcome twins, particularly if they are large at birth. Usually the cow does not produce up to expectations during her following lactation.

In the majority of cases, females born as twins or triplets with bulls will prove to be nonbreeders. These nonbreeders have imperfect reproductive tracts and are referred to as freemartins.

Approximately 1 out of 10 females dropped twin with bulls will be normal. We haven't seen a report indicating the ratio of normal to abnormal females in triplets, but would suspect the ratio to be about the same as for twins.

We checked two female calves born with a male about a year and a half ago. They were found normal. Both were diagnosed safely in calf recently, having conceived on first services.

The underlying cause leading to the development of freemartins has not been fully established. However, there is evidence the female will be a nonbreeder when the fetal vessels are so joined together that the same blood supply passes through both fetuses.

An explanation is that the androgens or male hormones are developed earlier than the female hormones. As a result, normal production and development of female hormones and organs, respectively, are interfered with.

Both ovaries in a freemartin may be absent or infantile in size and function. The uterus, cervix, and anterior portion (front end) of the vagina frequently are absent. In rare instances, one or both functional ovaries and an infantile cervix and uterus are present.

Often the young freemartin has external characteristics which lead to suspected infertility. A very common sign is a peculiar wrinkling of the skin in the region of the vulva. The vulva itself often presents a thickened appearance and may be more pale in color than normal. Usually there is a tuft of long hair at the base of the vulva, and frequently the clitoris is enlarged. Oftentimes the udder and teats are smaller than normal.

The diagnosis of freemartins can be made, rapidly and accurately, in a laboratory where blood typing is done. Freemartins also can be diagnosed by veterinarians, with a relatively high degree of accuracy, through digital (finger) palpation or by means of a small tube or speculum. Both the laboratory and clinical check can be performed at an early age. If a positive clinical diagnosis cannot be determined, the animal should be re-examined at a later date, especially if she is a valuable individual.

The normal twin female may be expected to produce satisfactorily just like one born singly. Whether such a female should be used as a foundation cow is open to question. We need further research to definitely answer this question.

Twinning is an undesirable development in cattle. There are indications that twinning will increase if selection is not practiced. Association between twinning and the incidence of cystic ovary development seems evident.

ERADICATE WHITE SNAKEROOT

I have a piece of land that has been used for calf pasture for about 30 years. Last year I lost 6 out of 10 heifer calves, and this year I lost 2. I then decided that they must be eating something that was causing them to die.

A neighbor of mine, knowing of my trouble, gave me an August 25 copy of Hoard's Dairyman, which has an article "White snakeroot dangerous plant." This article explains the plant so exactly and the symptoms so clearly, I knew this was my trouble.

I have found the plant all along the brook supplying water for the pasture.

Can you tell me what to use to control this dangerous plant?

Enosburg Falls, Vt. G.K.

White snakeroot eradication from a field is not an easy task. Chemical weed killers usually are not satisfactory since they endanger trees and other plants. Perhaps the best way to reduce the number of plants is to pull them out by the roots and burn them. September is the best time to do this when the plants can be readily recognized by their white blossoms. If the plants are pulled after a hard rain, while the ground is soft, the shallow roots will come out easily.

To prevent poisoning, livestock should be removed from the pasture where the plants grow as soon as the dry period develops in late summer. In the northern states, this usually means removal of livestock from infected pastures during the first part of July. The animals should not be returned to the field again until spring of the next year.

UDDER INJURY

I have been having trouble with my Holstein cows giving bloody milk. At first I thought it was mastitis, as our veterinarian told me that is what he thought; he said it probably was caused from bruises. The treatments I use only help for a few days.

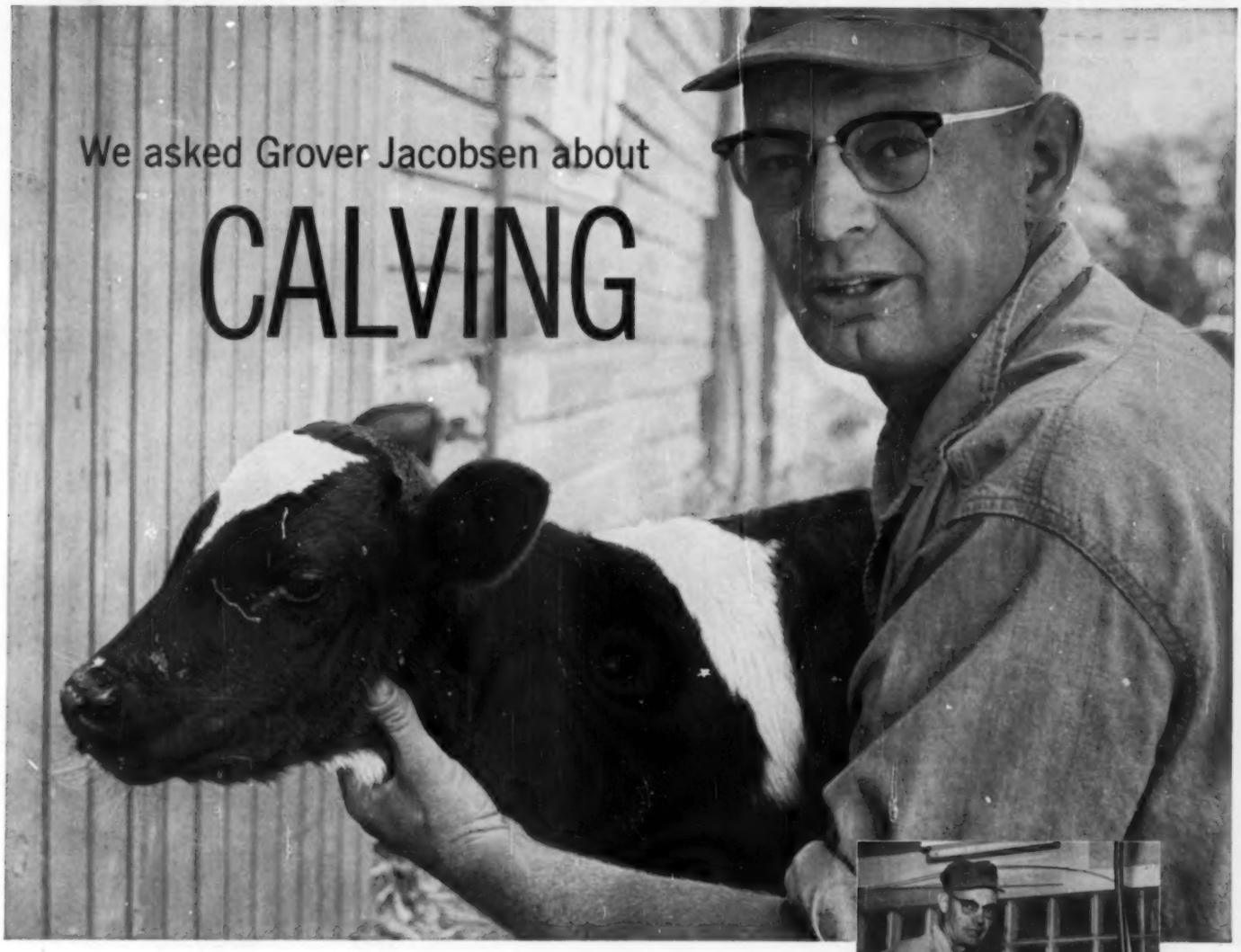
Could you tell me what is causing this trouble?

Havensville, Kans. T.W.W.

Blood in the milk usually is an indication that a ruptured blood vessel has occurred in the udder, either from a bump or other type of injury, or capillary bleeding due to congestion of the udder at calving time. Ordinarily, bleeding after freshening ceases in a few days.

If blood appears in the milk other than at freshening time, it may also indicate the presence of leptospirosis organisms or some other disease that causes capillary damage. There is also a good possibility that mastitis is present in the herd, due to udder injury from leaving the milking machine on the teat too long or from abnormal vacuum.

We suggest you consult your veterinarian again, primarily to determine the cause or causes of the udder injury so that steps may be taken to eliminate trouble.



"We licked two big calving-time problems by using 'Clovite' to supply missing vitamins"

Grover Jacobsen milks 36 head of Holsteins near Wells, Minnesota. He has a modern, well-managed farm. Yet, even with a carefully planned feeding program, some vitamin deficiency problems were showing up at calving time. Cows weren't cleaning as they should—there was a lot of scouring in young calves.

On the advice of his veterinarian, Jacobsen started feeding 'Clovite', to build up the intake of natural vitamins A and D. According to his own statement, those difficult calving-time problems cleared up. Calves got off to a better start. Getting needed vitamins from 'Clovite' helped keep them free from scours. Cows cleaned well and showed material improvement in their daily milk production.

'Clovite' is a concentrated vitamin source. Supplies essential quantities of natural vitamins A, D and B_{12}, along with thiamine, riboflavin, niacin, choline and pantothenic acid, in a golden yellow fish-oil meal base which conserves the vitamin properties. Mixes with any feed. Adds palatability. Available in 25 lb. pails and 100 lb. drums from your local veterinarian. See him soon—*he knows best, what's best.*

"Our milk production showed a healthy increase, as we overcame vitamin shortages."

"This 'Clovite' has done a great conditioning and resistance building job with our calves."

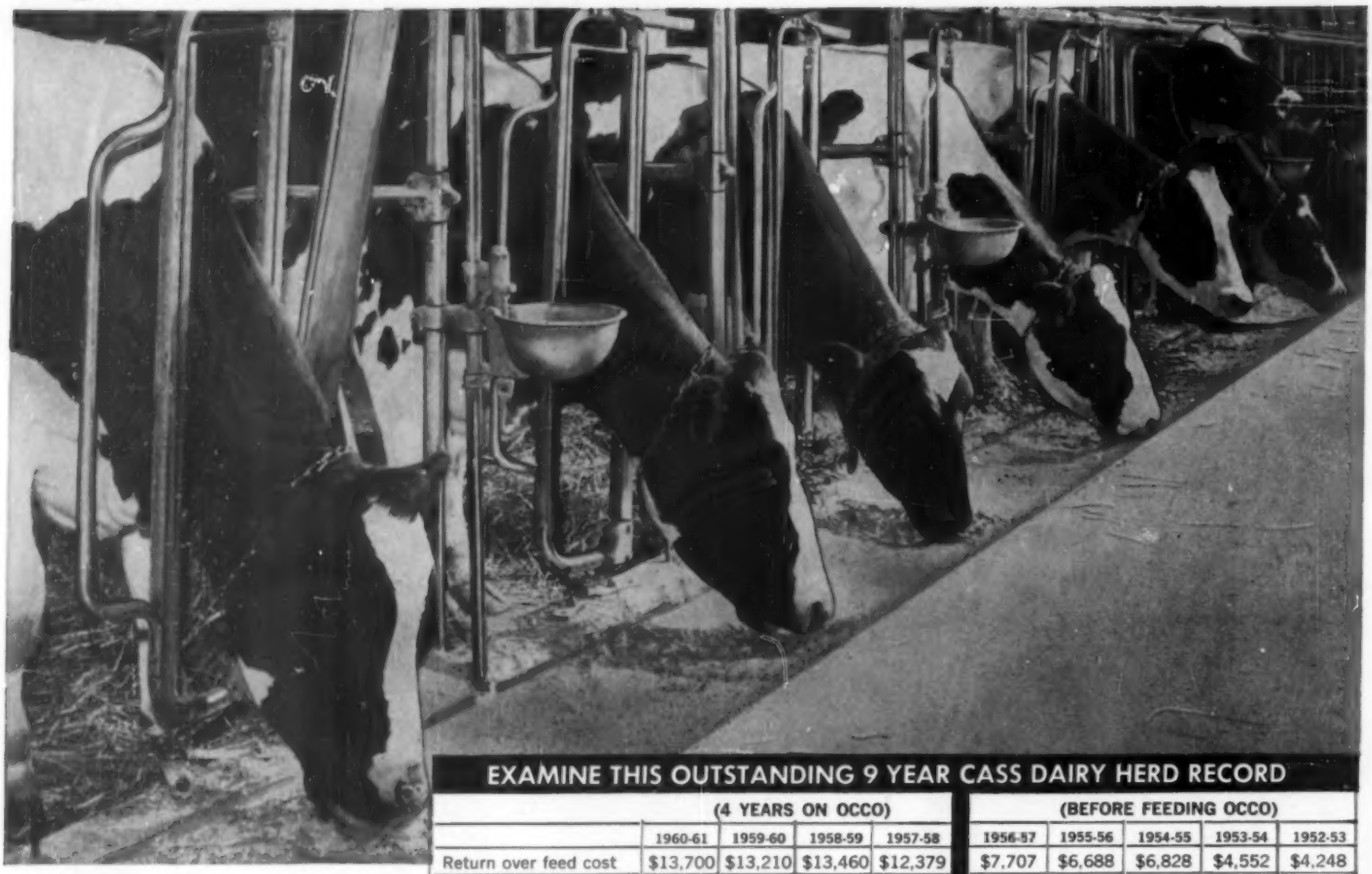
Clovite®

High-potency vitamin supplement

FORT DODGE®

Fort Dodge Laboratories, Fort Dodge, Iowa

END OF TRAY-320



Current 1961 D. H. I. A. test records on the Cass Farm Herd, Sumner, Iowa, showed a remarkable dairy performance compared to previous years . . .

EXAMINE THIS OUTSTANDING 9 YEAR CASS DAIRY HERD RECORD

	(4 YEARS ON OCCO)				(BEFORE FEEDING OCCO)				
	1960-61	1959-60	1958-59	1957-58	1956-57	1955-56	1954-55	1953-54	1952-53
Return over feed cost	$13,700	$13,210	$13,460	$12,379	$7,707	$6,688	$6,828	$4,552	$4,248
Average cow years	44.1	44.3	44.1	45.1	42.3	36.7	33.5	32.2	33.5
Avg. return over feed cost	$311	$298	$305	$274	$182	$194	$204	$142	$127
Totals lbs. of milk	593,000	594,800	577,000	543,220	405,400	329,670	328,180	303,260	281,830
Lbs. of milk per cow	13,450	13,430	13,080	12,037	9,582	8,978	9,835	9,430	8,405
Total lbs. butterfat	20,720	20,740	20,220	19,429	13,585	11,071	11,335	10,312	9,272
Lbs. butterfat per cow	470	468	459	430	321	301	339	321	277

"OUR RETURN OVER FEED COST IS $311.00 PER COW WITH OCCO"

"Our Cass Holstein Herd was changed to the complete OCCO feeding program during each cow's dry period four years ago. In addition to OCCO, good roughage, corn and oats made up the ration. In 4 D.H.I.A. test years, the net return over feed cost increased by $128.80 . . . up to $311.00 per cow this year! Our profit per cow is up 71% over the last 4 years in spite of higher feed costs and lower milk prices. Total butterfat production has increased 53% and total milk production is up 46%. The breeding in the herd hasn't changed; normal culling has been done with replacements from the herd. No female stock has been added from other herds. Only the feeding program has changed. In addition to sound management, we are convinced that the OCCO feeding program has played a major role in improving the records of this herd."

/s/ James Hartman, Cass Farm, Sumner, Iowa

Let your OCCO Man tell you about the complete "Double Dairy Dividends" Feeding Program, including OCCO Milk Replacer, Calf Pellets, Dairy Supplement, OCCO-LAK and OCCO Dairy Mineral. And don't miss the outstanding Free "Capstress" offer below.

OCCO "Protein Plus" MINERAL FEEDS Box 640-P Oelwein, Iowa

Please RUSH information on items checked below. I understand there is absolutely no obligation to me.

☐ Free "Capstress" offer ☐ Free "Double Dairy Dividends" Brochure

Name_____

Address_____ RFD_____

Town_____ STATE_____

FREE! *New* CAPSTRESS™

High Potency Water-Dispersible VITAMIN A

Here's OCCO's answer to Vitamin A Deficiency—"Capstress"—formulated for use in either feed or water. This fast, water-dispersible dry product is recommended for all livestock whose Vitamin A reserves are depleted as a result of stress, disease, internal parasites or nutritional deficiency. **Now, you can have a FREE 300 gram can—containing 30,000,000 units of Vitamin A** with each ton of OCCO Dairy Feed you order. **That's enough vitamin A to supply 50 dairy cows for two weeks!** This outstanding offer is limited, so see your OCCO Man now—or mail the coupon. **Offer expires December 31, 1961.**

OCCO Protein Plus **MINERAL FEEDS**

A TRUSTED NAME AMONG LIVESTOCK MEN FOR OVER 49 YEARS • HOME OFFICE: OELWEIN, IOWA